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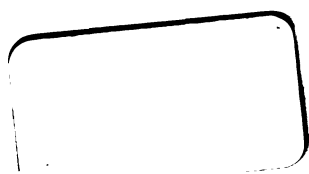


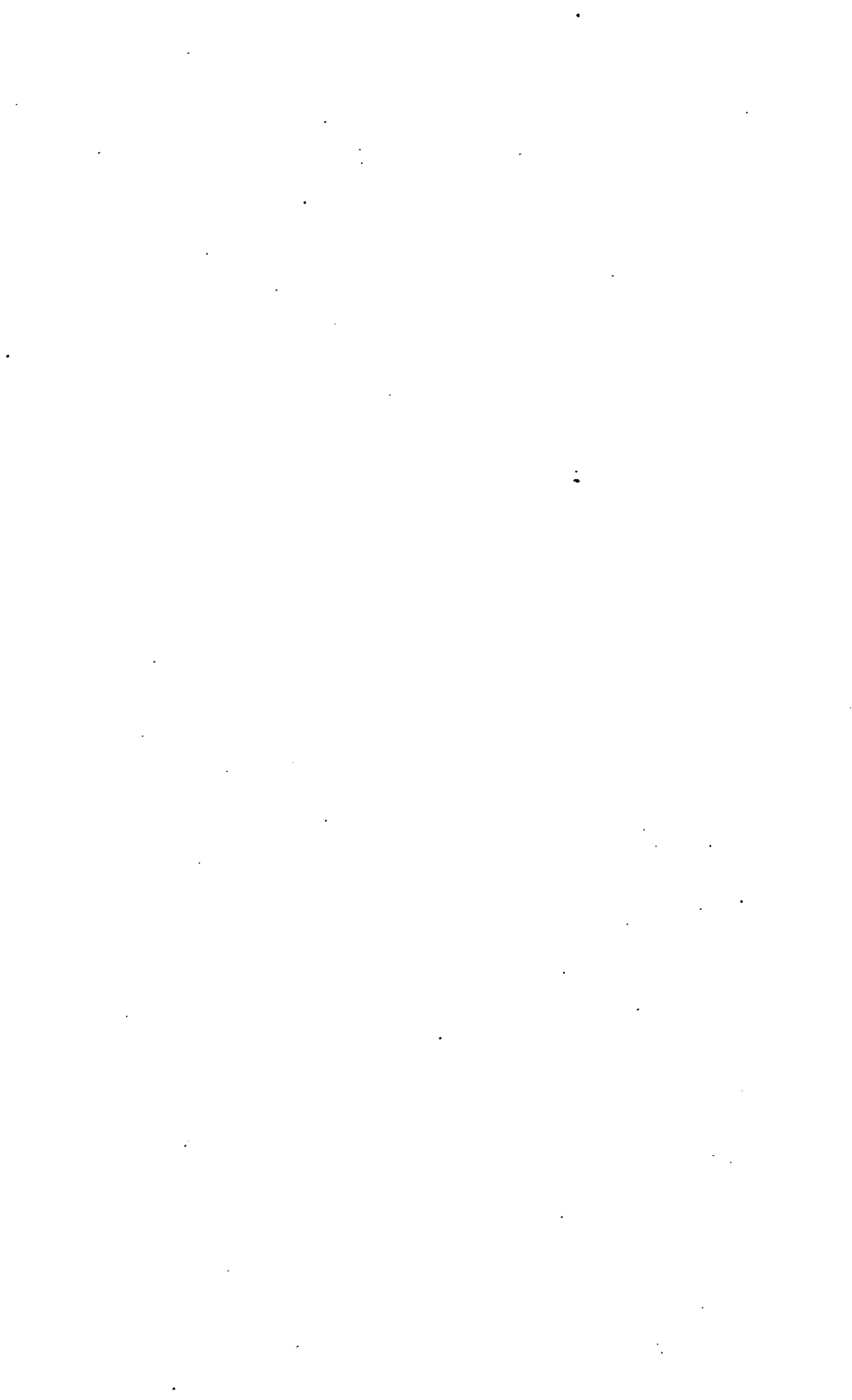


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*of George R. Gliddon Esq. Secy.*  
*from his friend*  
A NOTICE

OF THE

*Bennet Doulos*

ORIGIN, PROGRESS, AND PRESENT CONDITION

OF THE

ACADEMY OF NATURAL SCIENCES

OF

PHILADELPHIA.

BY

W. S. W. RUSCHENBERGER, M.D.,

SURGEON U. S. NAVY.

[Read before the Society, February 10, 1852.]

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"The profit we derive from the works of creation will be in proportion to the accuracy of our knowledge of them and of their properties."

KIRBY AND SPENCE. ENTOMOLOGY. Philada. 1846.

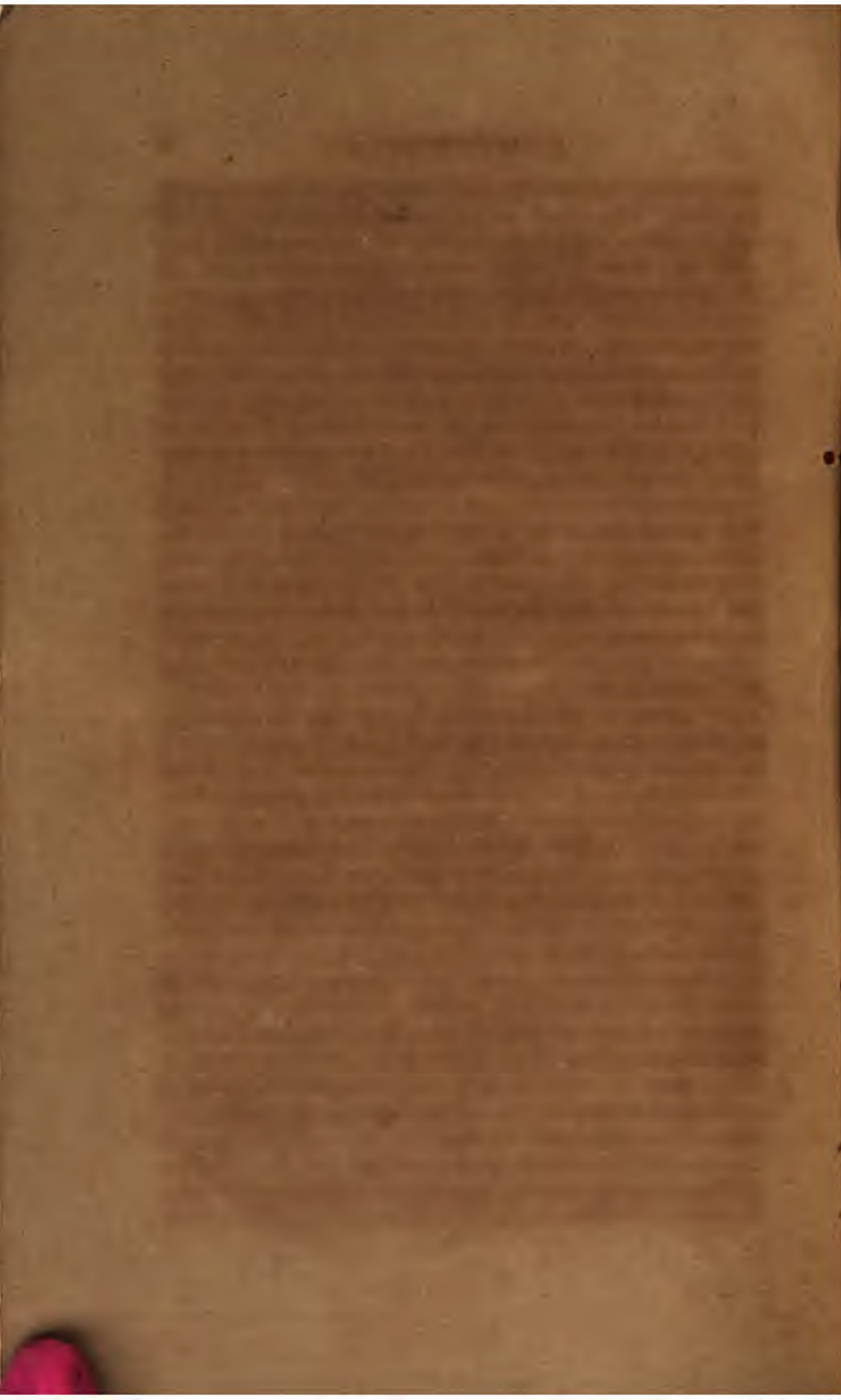
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PHILADELPHIA:

T. K. AND P. G. COLLINS, PRINTERS.

1852.





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PHILADELPHIA, February 12, 1852.

DR. W. S. W. RUSCHENBERGER.

DEAR SIR:—According to the directions of the Academy of Natural Sciences of Philadelphia, we transmit you a copy of the resolutions passed relative to your "Notice of the Academy," recently read before it.

While we offer you our assurance of the pleasure afforded us in listening to the pleasing details of the "Notice," we would congratulate you upon the gratification you have been enabled to confer, not only upon the members of the Academy but also upon all other persons interested in the progress of science, by the rescue from oblivion of facts connected with the infancy and growth of the Institution, which must become more and more valuable every year: as well as by the satisfactory manner in which the records of its more recent events and present condition are portrayed.

With much regard, we remain your fellow-members,

WM. S. VAUX.  
ROBERT BRIDGES.  
ROBERT PEARSALL.

HALL OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA.

February 10, 1852.

At a meeting of the Society held this evening, the following Resolutions were unanimously adopted, viz. :—

*Resolved*, That the members of the Academy have listened with the deepest interest and satisfaction to the "Notice" just read.

*Resolved*, That the thanks of the Academy be presented to Dr. W. S. W. Ruschenberger for the labor he has bestowed in the preparation of the able and faithful notice read by him before the Society, and that he be requested to furnish to the "Committee on Proceedings" a copy of the same for publication.

*Resolved*, That Messrs. Wm. S. Vaux, Robert Bridges, M. D., and Robert Pearsall, be a committee to communicate to Dr. Ruschenberger the foregoing resolutions.

PHILADELPHIA, February 18, 1852.

GENTLEMEN:—I have had the pleasure to receive your letter of the 12th inst. enclosing a copy of resolutions, adopted at a meeting of the Academy of Natural Sciences on the 10th instant, conveying to me, in most agreeable terms, its approbation of my attempt to record a true history of the Institution.

Your long association with the Academy, your intimate acquaintance with all that belongs to it, and your knowledge of the details of every department, acquired through years of personal labor, render your approval of my "Address" most valuable and gratifying.

A copy of the Address will be placed at the disposal of the "Committee on Proceedings."

Accept the acknowledgments of your fellow-member, and believe me,

Very truly, yours,

W. S. W. RUSCHENBERGER.

WM. S. VAUX, Esq.,  
ROBERT BRIDGES, M. D.,  
ROBERT PEARSALL, Esq., } Committee.



# A NOTICE

OF THE

## ACADEMY OF NATURAL SCIENCES.

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THE proclivities of the present age are eminently utilitarian. Before engaging in any pursuit, men wish to know in what it can profit them. Immediate and direct gain is an object of common desire; hence, these vocations which promise a speedy compensation for labor are most popular, and the paths travelled by those who have been fortunate in pursuit of wealth are most eagerly sought. Agriculture, the mechanic arts, and commerce, which supply the wants, the comforts, and luxuries of man, employ the great masses of society. A love of wealth is a stronger incentive to toil than benevolence; the fame which inures to a labor unproductive of palpable remuneration stimulates but few. Those branches of learning and philosophy which facilitate the acquisition of wealth, attract a larger number of diligent votaries than those which advantageously influence the condition of society, without adding to the pecuniary profit of those who pursue them.

The utility, the beneficial influence, which natural history exercises on the common interests of society is not commonly understood, and, for this reason, the labors of naturalists are not very generally appreciated. Indeed, a vague meaning seems to be attached to the terms "natural history," and "natural sciences." Unless men comprehend the meaning of these names they cannot perceive the utility of, or set a value upon what they are used to designate.

Science and knowledge are not synonymous; there may be knowledge without science. Acquired facts constitute knowledge; but a science consists of any group of congenial truths or facts,

arranged according to any rational method, which enables men easily to perceive their general and mutual relations. Science, then, simply means a systematic arrangement of acquired facts. The natural sciences essentially consist in systematic arrangements of the facts and phenomena observed in nature.

In the broad acceptation of the term, natural history includes faithful descriptions of all natural objects. Natural science does not consist merely in making a catalogue of all the plants and animals on the surface of the globe; it embraces a history of the structure, composition, mode of existence, and growth of all natural objects, and seeks to ascertain the laws which determine the innumerable shapes in which matter, both organic and inorganic, presents itself to our senses. All the phenomena observed in the atmosphere above, as well as in the earth beneath, fall within its domain. Chemistry is included among the natural sciences, because the laws which regulate the affinities, the motions ever existing among the molecules or ultimate atoms which constitute matter, are among the subjects pertaining to the researches of naturalists.

A brief allusion to some branches of natural science will enable us to perceive that its influence is advantageously felt in many departments of those arts which contribute largely to the well being of society.

Botany does not consist exclusively in distinguishing from each other the various forms of vegetation, and recognizing them by names derived from the Greek and Latin languages. It does not teach us simply to divide the world's flora into orders, tribes, families, genera, and species, according to an arbitrary system of arrangement, and to know the peculiarities by which they may be certainly distinguished, one from the other. Botany includes a study of the anatomy and physiology of the vegetable kingdom. Through this study we acquire a knowledge of the structure, mode of growth, and the kind of diet upon which plants depend for sustenance, as well as the appropriate functions of their several parts, and the circumstances which influence vegetable existence. From it we have learned that plants derive nourishment from the earth, through means of roots whose function is to separate from the soil those salts or other materials which enter into the composition of their tissues; and that, through the medium of leaves, they breathe the air which is essential to their

vitality, and, consequently, to the circulation of sap and other liquids.

Such information is of no small value to the science of agriculture, which essentially consists in a knowledge of the most successful means of feeding the various plants cultivated for food, or for materials to be used in the arts and manufactures. When the elementary composition of plants is ascertained through the aid of chemistry, this knowledge of their vital functions enables the agriculturist to select the soil, exposure, and manures best adapted for each variety to obtain a lucrative crop.

But this is not the only manner in which natural history has led to improved and rational modes of cultivation. The labors of botanists have exploded many false notions which prevailed among farmers, calculated to discourage efforts to protect their crops from injurious influences. A power of self-transmutation was once attributed to plants; ignorant persons believed that some species were capable of metamorphosing themselves into others. It was once asserted and believed that "*barley* frequently degenerates into *oats*," and even now some credulous persons contend that "*wheat* is sometimes transformed into *bromus* or *cheat*."\*

Even purely descriptive botany may be usefully applied to agriculture. Certain plants, which are injurious to cattle, will be eaten by them when pasture is deficient; and some noxious plants will be eaten when dry and mingled with hay, which animals reject in the green state. A knowledge of descriptive botany would enable the farmer to remove these, as well as profitless weeds, and thus improve his grounds for the advantage of his stock. The wild flora of a country or district affords a valuable indication of the nature of the soil and its subsoil. "Thus, the heath on elevations indicates a dry soil; the fern, that it is deep as well as dry. The deer-hair (*Scirpus cæspitosus*) grows commonly over bogs, resting on clay. In the lower situations, the broom (*Spartium scoparium*) tenants the deep light gravels. The whin, the coarser gravels upon a clay subsoil. The rush (*Juncus conglomeratus*) tells the intelligent farmer that good land is rendered useless for want of drainage. The common sprit (*Juncus articulatus*), that the land is not fertile. Sweet gale

\* Memorials of John Bartram and Humphrey Marshall. By William Darlington, M. D., LL. D., &c. Philad., 1849.

(*Myrica Gale*), that it is still worse. The rag-weed (*Senecio jacobæa*), in arable land, betrays an ill-cultivated loam. The marsh marigold (*Caltha palustris*), or the wild water-cress in water meadows, tells the owner that the land is fully irrigated. The common rattle (*Rhinanthus christi*) that a meadow is exhausted. The pry (*Carex dioica*) that water is stagnating beneath its surface; and these are only a few of the truths which wild flowers teach the intelligent cultivator. Botanists have, indeed, long been at work for the farmer—a fact no one will be willing to dispute who remembers that the sloe, the blackberry, and the crab, are nearly all the fruits indigenous to England; and that hardly a grass, a flower, or a vegetable, that is now cultivated, is a native of the island.”\*

It is to the study of botany we are indebted for a knowledge of certain vegetable growths, which are destructive to timber. “Mr. Schweinitz had, in his collection, fine specimens of the *Dematium aluta*, taken out of the ships of war built by our government, on Lake Erie, where, in a few years, he remarks, ‘this little fungulous enemy completely destroyed that fleet which had so signally vanquished the armament of Britain.’ ”†

Linnaeus, “by his botanical knowledge, detected the cause of a dreadful disease among the horned cattle of the north of Lapland, which had previously been thought equally unaccountable and irremediable.”‡

A large portion of the materials employed in civil and naval architecture, and many of our most valuable medicines, are derived from the vegetable kingdom. It is estimated that at this time there are about 85,000 species of plants, which have been distinctly characterized. For the means of distinguishing them from each other, and consequently, for the ability to recognize, amidst the host, those adapted to the purposes for which we seek them, we are indebted to the labors of botanists.

The department of natural history which relates to insects, is less conspicuous than botany; but it is not less important in

\* The Farmer's Encyclopædia. By Cuthbert W. Johnson, Esq., F. R. S., &c. Adapted to the United States. By Gouverneur Emerson. Philadelphia, 1844.

† A Memoir of the late Lewis David Von Schweinitz, P. D. By Walter R. Johnson. 1835.

‡ James E. Smith. Introduction to Botany.

its bearings on the interests of society. Naturalists have already characterized about 80,000 species of insects, and their continued investigations are still adding to the number. The crustaceans (crabs), arachnidans (spiders), annelidans (worms), &c. &c., in all about 180,000 species, were once included in the department of entomology.

Insects are the scavengers of nature: in pursuit of food, they remove from the surface vast quantities of decaying and putrescent matters, which, if left undisturbed, might so contaminate the air as to render it poisonous to the inhabitants of the earth. Everywhere they constitute a large part of the food of birds and fishes; and in some countries certain species are eaten by man.

Various insects are known to be injurious to the grains and grasses of our fields; to the fruit-trees of our orchards, and to plants in conservatories. It is known that some species prey upon others; and that those which feed on the various aphides, or plant-lice, may be employed to relieve us from the ravages of such destroyers.

A knowledge of the habits, mode of life, and of the food of the various kinds, leads to means of escaping the injuries which many of them inflict, and of fostering those which are useful to man. Doubtless there are some persons who are not aware that most insects pass through four stages of existence: 1, the egg; 2, the caterpillar; 3, the chrysalis, and 4, the butterfly, or imago. In order to guard against the ravages of insects, it is necessary to know the stage of existence during which they are most injurious, and also to be able to recognize the different shapes under which they appear. Without a thorough knowledge of the phenomena of insect metamorphosis, it is vain to attempt to control their increase. The information of Linnæus on this point, enabled him to teach his countrymen to destroy an insect, the *Cantharis navalis*, which had cost the Swedish government many thousand pounds a year, by its ravages on the timber of one dock-yard only. After its metamorphosis, and the season when the fly laid its eggs were known, all its ravages were stopped by immersing the timber in water during that period.\*

In 1817, the late Mr. Thomas Say described the "Hessian Fly," *Cecidomyia destructor*, which commits great ravages on growing wheat; and at the same time pointed out the *Ceraphron*

\* Smith. Introduction to Botany.



*destructor*, which probably restrains the increase of the first. It deposits its eggs in the bodies of the larvæ of the Hessian Fly, and the young, when they escape from the egg, feed upon the larva till it dies.

During the year 1849, Miss Morris, of Germantown, discovered that the *Tomicus liminaris* of Mr. Say, is a destroyer of the peach-tree. It bores through the bark and feeds upon the living portion. She has stated also that the *Baris tripunctatus*, of Mr. Say, is one of the destroyers of the potato, in the stem of which its larvæ undergo their metamorphoses. And Mr. S. S. Haldeman ascertained that the *Hylesinus aculeatus*, of Say, feeds upon the inner bark of the white ash, *Fraxinus acuminata*.

There was a time when a loathsome disease, which Van Helmont tells us he contracted by shaking the gloved hand of a lady friend, was treated by bleeding, purging, and sweating. Since his days, investigations have demonstrated that this malady depends upon the presence of an acarus—the itch-insect—and is to be cured only by destroying the animal. There are several affections attributed to the acarus tribe; the ulcers caused by the chigoe or jigger (*Pulex penetrans*), an insect which is prone to burrow in human flesh, are familiarly spoken of by all who have visited the tropics. The harvest-bug (*Leptus autumnalis*) buries itself in the legs of laborers in the harvest-field, producing intolerable itching and pain. In cases of *plica polonica*, an affection of the scalp, we are told that millions of lice appear on the third day of the disease. Numerous affections have been traced to the larvæ of flies deposited in the tissues of mammals; a disease familiarly known as the bots, which occurs in horses, sheep, and in man, has this origin. Worms of several kinds are known to thrive in the human body, and to produce disease. Indeed, the affections known to be caused by insects, spiders, worms, &c., are so numerous, that Raspail has ventured to construct a system of medicine based upon the animate origin of diseases. In his work, may be found a history of many affections, caused by the presence of minute parasitic insects.\*

Though many evils arise from insects, they are also the sources of much that is good. The product of the silk-worm, the wax

\* Histoire Naturelle de la Santé et de la Maladie chez les végétaux et chez les animaux en general, et en particulier chez l'homme. Par F. V. Raspail. Paris, 1843.

and honey produced by the labor bees, are familiar to all. The gall-nut, which forms the basis of one of the most valuable articles known, I mean ink, is due to the labors of an insect on a variety of oak. Gum ammoniac, the varieties of lac (shell-lac, lac-lake, and stick-lac), have a similar origin. To various species of coccus we are indebted for several important dyes, among the most conspicuous of which is the cochineal. The varieties of cantharides afford blistering materials; and a tea made of bees has been recently found useful in a distressing disease.\*

Within a short time, the unexpected presence of microscopic insects in certain regions has been supposed to show the course of the winds; when their habits and geographical distribution are fully ascertained, their appearance in any unusual locality may be relied upon as an indication of the direction of atmospheric currents.

A class of animals which exercises an influence of such extent, for good as well as for evil, over the condition of man, is surely worthy of his attentive study.

Conchologists have described about 15,000 species of mollusks. They afford food to man and other animals. The strata of the earth records their antediluvian existence; hence a knowledge of conchology enables the geologist to recognize fossil shells, the presence of which serve to characterize certain formations.

Herpetologists have made us acquainted with about 2,000 species of reptiles, and established the means of distinguishing those which are harmless and useful from those which are poisonous and fatal.

Naturalists have described about 10,000 species of fishes, a class of animals from which man derives almost incalculable benefits. To be convinced of the truth of this assertion, it is only necessary to glance at the extent and value of the various fisheries in the world.

About 6,000 species of birds have been described. The value of the study of ornithology has been so beautifully stated by one of the earliest members of the Academy, that I will quote his language. Alexander Wilson, in the preface to the fifth volume of his "American Ornithology" says:—

"In treating of those birds more generally known, I have endeavored to do impartial justice to their respective characters.

\* Dunglison on New Remedies, p. 703. Philadelphia, 1851.

Ignorance and stubborn-rooted opinions, even in this country, have rendered some odious that are eminently useful; and involved the manners of others in fable and mystery, which in themselves are plain and open as day. To remove prejudices, when they oppose themselves to the influence of humanity, is a difficult, and when effected, a most pleasing employment. If, therefore, in divesting this part of natural history of our country of many of its fables and most forbidding features, and thus enabling our youth to become more intimately acquainted with this charming portion of the feathered creation, I should have succeeded in multiplying their virtuous enjoyments, and in rendering them more humane to those little choristers, how gratifying to my heart would be the reflection! For, to me, it appears that, of all inferior creatures, Heaven seems to have intended birds as the most cheerful associates of man; to soothe and exhilarate him in his labors by their varied melody, of which no other creature but man is capable; to prevent the increase of those inferior hosts of insects that would soon consume the products of his industry; to glean up the refuse of his fields, 'that nothing may be lost,' and, what is of much more interest, to be to him the most endearing examples of the tenderest connubial love and parental affection."

Under the head of mammalogy, naturalists have described about 2,000 species of animals, which, while young, subsist on the milk of their mothers. All known quadrupeds, whales, dolphins, &c., are included in this class. Amongst them are our beasts of burden, the cattle of our fields, and domesticated animals of many kinds. They are familiar to all; but perhaps, every one is not aware that a full knowledge of their nature contributes to the improvement of agricultural stock, and affords indications of rational methods of treating the diseases to which domestic animals are obnoxious.

Mineralogy teaches the characters by which simple minerals or stones may be recognized and distinguished from each other. The costly errors into which persons totally ignorant of this science have fallen illustrates its utility. A man in England found upon his farm a great quantity of sulphate of barytes, and, believing from its weight that it must be a rich ore of lead, expended a large sum in building a furnace for smelting it. Another paid a considerable amount of money for a few pieces of white topaz, which he conceived to be diamonds. Men in

other respects intelligent, producing iron pyrites, in triumphant proof that they have discovered a mine of gold, is an event of frequent occurrence. About a hundred years ago, a house was built in Baltimore of bricks imported from England; yet beneath the site of the garden, and neatly laid out grounds, once the pride of the owner, was a bed of clay which has afforded and continues to afford material for millions of bricks. A very slight knowledge of mineralogy would have been sufficient to prevent such blunders.

Chemistry is essential to a perfect acquaintance with mineralogy. The utility of chemistry is perhaps more generally palpable than any other branch of natural science. To the labors of chemical philosophers society is indebted for many comforts and luxuries. The discovery of a gas adapted to the purposes of illumination has been followed by trades and occupations not previously known or required; gas-fitting, and the manufacture of gas, as well as daguerreotyping, are among the vocations brought into existence exclusively through the study of chemistry. Indeed, the applications of this beautiful science to the practical purposes of mankind are almost innumerable.

Geology cannot be successfully prosecuted without a knowledge of other branches of natural science. Mineralogy is necessary to understand the composition of aggregate rocks; and botany and the different departments of zoology enable us to trace back, through the progress of time, the various steps in the formation of the earth to a period in the creation when no organic form existed, either upon dry land or beneath the waters. The record is indelibly written in the fossil remains of animals and plants; and it cannot be read by one entirely ignorant of osteology and comparative anatomy.

A knowledge of geology is valuable to the engineer in locating roads. The study of geology and mineralogy has developed those principles which facilitate the search for coal-beds and veins of metallic ores; clays used in the manufacture of the varieties of porcelain, pottery, and bricks; quarries of marble and stone; and through this study architects may acquire knowledge which will assist them in judging of the strength, durability, and comparative value of the varieties of building stone, and in selecting those best adapted to their purposes. The utility of geology has been publicly acknowledged: many States of the Union have

been at the expense of geological surveys, for the purpose of ascertaining their mineral resources.

A knowledge of natural history, generally, facilitates the economic exploration of new countries, and enables the traveller, almost at a glance, to perceive the nature of the soil and climate, as well as the value and qualities of their vegetable and mineral productions. But among the many benefits which the natural sciences confer upon society, there is none more valuable than the assistance they afford to the study of the laws of life, upon an accurate knowledge of which a rational system of medicine, a true medical science, must be based. Physiology is indebted for its present state of advancement, almost exclusively to the assiduous cultivation of the natural sciences.

The rapid sketch above given is sufficient to indicate the usefulness of the natural sciences. Notwithstanding the utility, their cultivation has been erroneously supposed to lead to religious infidelity; and, therefore, its votaries have been regarded with suspicion. The history of the progress of geology records how violently prejudice and ignorance were arrayed in opposition to the investigations of natural objects. There was a time when, "had there been a Protestant inquisition in England," says Sir David Brewster, "the geologists of the north would have been immured in its deepest dungeons."

"Truth, however, marched apace; and, though her simple and majestic procession be often solemn and slow, and her votaries few and dejected; yet on this, as on every occasion, she triumphed over the most inveterate prepossessions, and finally took up her abode in those very halls and institutions where she had been persecuted and reviled. When their science had been thus acquitted of the charge of impiety and irreligion, the members of the Geological Society left their humble and timid position of being the collectors only of *the materials of future generalizations*, and became at once the most successful observers of geological phenomena, and the boldest asserters of geological truth."\*

Nothing has been formed in vain. It is among the pleasures of a Christian to believe that God, in his bountiful goodness,

\* Hugh Miller: *Sketches of his Life and Writings*. By Sir David Brewster, Bart.

created every animate and inanimate thing in nature for the benefit of man. A sense of gratitude alone should induce him to examine and learn the properties of those gifts, upon the proper use and appreciation of which depend, in a great degree, his health, his happiness, and duration of life in this world.

To understand natural history perfectly in all its departments, is to be able to perceive and describe the wonders of the creation. Every step in its study is a step in the pursuit of truth. No man can follow long in the path without being convinced that material atoms possess in themselves no formative quality, which enables them to unite spontaneously to produce an animal, a vegetable, or a mineral form. The complex arrangement, the adaptation of parts to each other, the economy of means in the fulfilment of a definite purpose, indicate that design existed previous to the existence of organic form and life. It is impossible to believe that atoms are self-endowed with ability to aggregate themselves together into any organized shape at pleasure, either as a bird, or snail, or other being, in obedience to impulses of affection or aversion. The student of nature must perceive there is no spontaneity in matter, and that the infinitely various forms which result from the combination of its elements, are due exclusively to laws imposed upon them in the beginning, by the OMNISCIENT MASTER AND ARCHITECT of all created things.

A naturalist cannot be an atheist. Absolute truth, which "is the extreme limit of human knowledge," includes no incompatibility. The facts and phenomena of the physical universe are in beautiful harmony with each other, and those who observe them understandingly are inevitably led to bow in humble adoration before the inscrutable First Cause. The phenomena of God's works cannot be inconsistent with God's truth, with God's revelations to man. When partially, or imperfectly observed, facts may seem to conflict with each other, and with the sacred Word; but the moment all their mutual relations have been ascertained, the perfect harmony which exists between the facts of the universe and their Creator becomes manifest.

To ascertain and understand the laws of God, exhibited in the structure of the globe, and in the living organizations which exist on its surface; to bring to light whatever may lie hidden in the obscure recesses of nature; to expose Truth in her nakedness, stripped of the distorting disguises in which ignorance and

superstition combine to hide her charms from the gaze of mankind, are among the objects of the natural sciences. Such objects are not and cannot be inconsistent with the duties or the feelings of a true Christian.

The study of natural history has a happy influence in the cultivation of the intellect. While it tends to tranquillize and strengthen the mind, and to release it from the thralldom of superstition and credulity, it refines the taste, and teaches man to appreciate justly the beauties and wisdom of nature. It is a drill, an exercise of the faculties in discriminating resemblances and in contrasting differences, and in the separation of truth from error. It enables us "to derive from objects that everywhere present themselves in our rural walks, not only amusement and instruction, but the highest incitements to piety and virtue."\* If it had no other object than to familiarize man with the wonders of the creation, intelligent people must perceive in this a sufficient inducement to encourage its study.

To corroborate the assertion that the study of the natural sciences is not incompatible with Christianity, a number of pious clergymen who have acquired wide-spread reputation as geologists, botanists, &c., might be named, though it does not seem necessary. Nor is this study inconsistent with any of the vocations of life. It may be pursued as an accomplishment, as men study music or drawing; or as a pleasant relaxation from ordinary duties, or as an agreeable occupation for their leisure hours. In this connection, it may be stated that the Academy of Natural Sciences owes its present condition entirely to the labors of its members, nearly all of whom have been daily occupied, from necessity, in the practice of the professions, or as merchants, or manufacturers, or mechanics. Theoretically, this Society does not consist of men already learned; but of men who desire to become acquainted with Nature and her laws, and who are fully sensible of the great benefits which increased knowledge of the creation must confer upon mankind. In a word, the institution is an academy, a school of learners rather than an association of learned men.

It is urged that the natural sciences are eminently useful to agriculture, to the arts, and to medicine, and for this reason,

\* Life of Alexander Wilson. By George Ord, F.L.S., &c.

their study is worthy of the fostering care and encouragement of the community. But an opinion is not to be inferred, from this, and attributed to the writer, that it is necessary or even proper that every farmer, every artisan, and every physician should be a naturalist. We know that men, ignorant of natural history, successfully cultivate the soil, work at various trades, and practice medicine; but it cannot be denied that those vocations, many of them very lucrative, derive the principles upon which they are based from the studies and investigations of naturalists. One object of such studies is to ascertain and establish principles, and to render them so plain, and simple in application to everyday pursuits, that they may be available to those of least learning and intelligence. It needs no argument to prove that the successful pursuit of such an object is useful and worthy of commendation. The influence of the natural sciences is analogous to that of mathematics, which is everywhere regarded as an essential branch of liberal education. Very few of the thousands of men who navigate the ocean, build ships, construct steam-engines and various complicated machines, and guide them when in operation, have studied the problems of Euclid, or even heard of the Principia of Newton; but no one has ever been bold enough to assert, for such reasons, that the science of mathematics is not essential to the art of navigation, to naval architecture, or to the vocations of millwrights, machinists, or engineers.

A few of our fellow-citizens, aware of the benefits which flow from an accurate and minute knowledge of natural objects, to every class in society, have joined together, in a spirit of benevolence and liberality, to furnish means for the cultivation of the natural sciences. The result of their efforts, through a period of forty years, is seen in the Library and Museum of this Institution, which are accessible by the public without cost, and without any restrictions other than those necessary to preserve them from injury or loss. Gratuitous tickets of admission to the Museum on Tuesdays and Fridays, may be obtained by applying to any member of the Institution.

The Hall of the Academy of Natural Sciences of Philadelphia stands at the north-west corner of Broad and George Streets, on a lot of ground measuring fifty by one hundred and twenty feet. The building is of brick, fire-proof throughout, and unpretending



in its exterior design and finish. It extends forty-five feet on Broad, and one hundred and fifteen feet on George Streets, with an elevation of fifty feet. When built, in the year 1839, the George Street front was eighty-five feet; but, in 1847, the edifice was enlarged to its present dimensions, to accommodate the Wilson collection of birds. The hall is divided into a basement and a single story above.

It is accessible by two doors; the George Street door opens to the Library only; the front or Broad Street entrance is used, almost exclusively, by visitors to the Museum.

The principal story consists of a single apartment or saloon. It is one hundred and ten feet long, and forty-two feet wide, and is lighted from the roof and the east and west extremities. On the north and south sides are three galleries, which, with the exception of the lowest, are supported by graceful iron columns; four ranges of vertical cases are placed against the walls, and a range of foot-cases, at the outer edge of the second and third galleries. Shallow cases are suspended horizontally on the rail of the lowest or flying gallery. On the west side are three galleries and four ranges of vertical cases. The floor is occupied by three ranges of broad horizontal cases, extending the length of the hall; and each is surmounted in the centre line by a series of vertical cases, two feet and a half high, glazed on both sides.

At the eastern, or Broad Street extremity, on each side, is a strong vertical case, containing the skeletons of large fossil saurians, imbedded in massive slabs of lias limestone. Above the case on the south side are suspended the portraits of William Maclure, William Hembel, and Samuel George Morton; and above that of the north side, those of Thomas Say, George Ord, and Gerard Troost, all distinguished members, and, during many years of their lives, official servants of the Institution.

The basement is divided into five apartments; two on the west, two on the east, and one on the north of the hall, or vestibule connected with the George Street entrance.

The north-east basement room is nine feet by sixteen, and has a gallery with two ranges of vertical cases on three sides of it.

The east basement room is forty-one feet in length by forty in breadth, with a gallery and two ranges of vertical cases on four sides. Vertical cases form a central partition, which has a

continuous gallery on each side. Horizontal cases occupy the floor.

The north basement-room is twenty by twenty-eight feet; it is used as a workshop.

The south-west basement-room is twenty by twenty-four feet. It is surrounded by a gallery and two ranges of vertical cases.

The west basement-room is twenty-eight by forty-two feet. It has a gallery and two ranges of vertical cases on its four walls, and cases extend from the north and south sides, several feet towards the centre. This apartment communicates with the main saloon by a flight of broad stairs.

The south and west rooms contain the library; the sessions of the Society are held in the latter.

This brief description of the building will serve to introduce the reader to the several departments of the Museum.

The collections are extensive in several departments, and, with very few exceptions, all are still in process of classification. The entire work of arrangement devolves upon the members, whose ordinary vocations permit them to devote to it only the leisure moments which most men spend in amusements. Only a few of them, a part of those composing the standing committees, are able to give any portion of the day to assist in this very tedious task. Every department receives a due share of attention; and though all advance slowly, enough has been accomplished to deserve high commendation. It should be remembered that no pecuniary profit accrues from the labor and pains bestowed in labelling and displaying the very many thousands of objects, which have been brought together here, for the sole purpose of diffusing knowledge among our fellow-citizens.

It is our pleasure to hope that the Academy will be cheered on in its course, till the Museum shall become an epitome of all created things; so fully displayed, that the student may resort to it with a certainty of learning what has been ascertained in the world of nature; just as inventors now seek the Patent Office to learn whether they have been preceded in mechanical discovery, before offering to the public any machine which they suppose to be new. Here should be seen representatives from every department of the earthly creation—collected from every accessible region—from mountain, and valley, and plain; from rivers, and lakes, and seas; and the burial-places, far down beneath the sur-

face whereon man dwells, should be made to yield from their stony embrace, those petrified relics of a past, which has no history except what they record. The Museum of the Academy should be, indeed, an office filled with Nature's patents, in which all may behold the wonders it has pleased an all-wise Creator to devise for the benefit and instruction of man.

The collections of the Academy may be considered under eighteen different heads.

### 1. MAMMALOGY.

The difficulty and expense of obtaining large quadrupeds, and the space required for their proper display, have opposed the increase of this department of the Museum. Indeed, it scarcely had a beginning until within a few years. Among those who early contributed to it, were Mr. John Speakman, Mr. Jacob Gilliams, Dr. Harlan, Mr. Reuben Haines, Dr. M. Burrough, Dr. C. Hering, Dr. Wm. Blanding, Dr. Ruschenberger, and some others. But, within five years past, this collection has been much augmented by donations from Dr. T. B. Wilson, Dr. J. K. Townsend, W. E. Strickland, Esq., Rev. Dr. Bachman, Capt. Wm. McMichael, Dr. G. Watson, Mr. Wm. Wood, Mr. L. J. Germain, the Smithsonian Institute, Dr. E. K. Kane, of the navy, and others.

The mammals are placed in cases on the floor of the main hall, beneath the north flying gallery. The collection, though not extensive, contains representatives of most of the American genera; and many of the specimens possess very considerable interest. Among those worthy of mention here, are the original specimen of the *Chlamyphorus truncatus*, a small animal described by Dr. Harlan; an albino deer (*Cervus Virginianus*), presented by Dr. Wilson; the original specimen of *Lupus gigas*, or giant wolf, described by Dr. J. K. Townsend; and the sacred monkey of Siam, or *Hylobates agilis*.\*

Dr. J. K. Townsend presented a collection of mammals, made during his visit to Oregon, and the Rocky Mountains. We are indebted to Dr. Wilson, for a hundred specimens, originally de-

\* A specimen of *Hippopotamus Liberiensis*, which is at this time unique, was received in January, 1852, since this notice was prepared.

scribed by C. L. Bonaparte, in his "Fauna Italica"; and to Dr. E. K. Kane, of the navy, for an Esquimaux dog, and a very fine specimen of *Ursus maritimus*, or polar bear, killed by him during a recent voyage to the Arctic regions, in search of Sir John Franklin. As soon as practicable, recent additions to the Museum are appropriately mounted.

The collection of mammals, including those in alcohol, in skin, and mounted, numbers 636 specimens, representing about 200 species of 90 genera.

## 2. ORNITHOLOGY.

The attention of members of the Academy was attracted to this department of natural science at an early period. The publication of Wilson's American Ornithology, about the time of the foundation of the Institution, and works on this subject by George Ord, Charles Lucien Bonaparte, and J. J. Audubon, published in succession, widely diffused a taste for this elegant study.

Mr. Thomas Say, (whose early social association with Mr. Wm. Bartram, and Alexander Wilson, probably directed his attention to the study of birds,) was the first to present specimens to the Museum. He and Mr. Gilliams commenced this department.

In the year 1837, the collection contained about 1,000 species, of which one half were displayed in the cases. This series included 250 species of the birds of Surinam, presented by Dr. Hering; and more than 200 species of the birds of India, many of them rare, had been presented by the late Dr. Burrough, "who, during his extensive travels in Hindostan, the Indian Archipelago, and South America, [always] availed himself of every occasion to increase [the Academy's] collections in all departments of Natural History." "Much is also owing," says Dr. Morton, "to the liberality of Mr. Audubon, Dr. McEuen, Dr. Mervin, Dr. Huffnagle, Dr. J. W. Russell, Dr. McMurtrie, Dr. Harlan, Mr. J. K. Townsend, Dr. Ruschenberger, Dr. J. C. Jenkins, Dr. Trudeau, and the late Mr. W. S. Warder; but, in this department, the Society is under particular obligations to Dr. McEuen, by whose personal exertions the collection has mainly attained its present extent and admirable preservation in the short period of eight years."\*

\* Notice of the Academy of Natural Sciences, of Philadelphia. Fourth edition, 1837.

Since the time when the above notice was written, the collection of birds, which is exhibited in the principal hall of the Academy, has grown to be the most extensive and the very best in the world. Its progress is intimately blended with that of the Institution; its history may be properly related in this place.

From 1837 until the commencement of the year 1846, about 550 specimens were added to this collection through the liberality of Mr. John Cassin, Mr. S. F. Baird, Dr. George C. Leib, Dr. A. L. Heerman, Mr. S. W. Woodhouse, Mr. John Morphett, Dr. G. Watson, and others. In the year 1842, Professor Holbrook presented 76 specimens, part of the collection of Mr. Ruppell; and in February 1846, the late R. C. Taylor, Esq. presented a collection of birds from Cuba.

In September, 1846, Dr. T. B. Wilson deposited in the Academy more than 12,000 specimens, a collection made in Paris, by the Prince of Essling, Duc de Rivoli, which Dr. Wilson purchased through the agency of his brother Mr. Edward Wilson, a correspondent of the Academy, resident in England. To accommodate this large and magnificent collection, Dr. Wilson enlarged the building to its present dimensions at his private expense; and in November, all the ornithological specimens belonging to the Institution were merged in it. The south-west basement-room was completed, and the Society met in it for the first time, May 4, 1847.

In the same month, Dr. Wilson purchased in England a collection of Australian birds, made by the distinguished ornithologist Mr. John Gould; it consists of about 2,000 specimens, and comprises those from which the drawings were made for his splendid work, "The Birds of Australia." This addition induced Dr. Wilson, with the ready assent of the Academy, to prepare the lecture-room in the basement, which had been rarely needed, for the reception of a part of the Museum.

During the same year the Academy received about 1,000 specimens, which constituted the fine collection of parrots, and conirostral birds, made by M. Boucier, an ornithologist, of the city of Lyons.

Subsequently, a collection of birds of Western America, made by Dr. Wm. Gambel; and another of birds of Western Africa, made by Mr. John Cassin, during a period of about fifteen years, were added by Dr. Wilson. Mr. Edward Harris presented

several specimens of unusual value, together with his entire collection, made during the long period of his association with Mr. Audubon.

Various collections, including several hundred specimens from the Museum of the celebrated ornithologist M. Temminck, of Leyden, as well as a large number from the British Museum, making an aggregate of several thousands, have been obtained through the exertions of Mr. Edward Wilson, and are now in the cases.

Mr. E. L. Kern has deposited many valuable specimens, collected in the various expeditions of exploration under the command of Colonel Fremont.

Nearly 1,000 specimens, collected in the interior of India, by Captain Boys, of the British army, many of which are new and rare, have also been received.

Valuable contributions to this department have been made by Colonel George A. McCall, U. S. Army.

In the month of December, 1851, the collection of Mr. John Krider, consisting of 2,000 specimens, was procured by Dr. T. B. Wilson, and is now in the hall.

Arrangements have been made in Europe, to add still whatever may be new or rare in ornithology.

The collection is estimated to contain at this time 27,000 specimens; of these not less than 22,000 are displayed in the cases, to which number additions are made almost daily. Of very many genera all the species known are exhibited; but, until the classification and catalogue are completed, the precise number of species cannot be readily ascertained.

Mr. John Cassin is constantly employed in arranging this truly magnificent collection. He is preparing an exact catalogue of all the species, not simply by making a list of names attached to them, but by careful study and comparison, ascertaining precisely the species of every individual specimen, without relying upon the label attached to it in any case. The labor involved in this work cannot be duly appreciated except by those who have been occupied in a similar task. Catalogues of three families of birds thus scrutinizingly prepared, in which the synonymes of each species are given with the authorities for them, have been published with the "Proceedings of the Academy;" and similar catalogues of other families are nearly ready for the press. From the printed catalogues, the following summary is deduced, which

may be regarded as a fair representation of the extent of the collection.

	Genera.	Species.	Specimens.
VULTURIDÆ (Vultures)	8	16	68
STRIGIDÆ (Owls)	13	92	374
CAPRIMULGIDÆ (Goatsuckers)	17	73	261

All the species of vultures hitherto described are in the cabinet. The completeness of this family is remarkable, for the reason that rapacious birds are captured with more difficulty than those of other tribes.

As may be easily conjectured, this cabinet is of very great value to the student of ornithology. In many instances numerous specimens are exhibited, to show the differences which arise in the same species, from difference of sex, of age, and period of plumage. Very many species are represented by the specimens, some of which are unique, originally described, and made known by distinguished ornithologists; and thus, the collection affords facilities for comparison, and verification of special inquiries, which no other possesses to an equal extent. In many instances the common English name is added to the label; but in very many cases birds have been named for the first time, and introduced to notice by naturalists, and, therefore, possess no other than the classic or systematic appellation originally given to them.

*Oology.*—In connection with the ornithological cabinet is a collection of birds' eggs and nests, exhibited in the shallow cases, which are suspended on the railing of the lowest or flying gallery of the principal hall.

Dr. S. W. Woodhouse, Dr. A. L. Heerman, Dr. Geo. C. Leib, Mr. Samuel Ashmead, and Professor S. F. Baird, of the Smithsonian Institution, have contributed largely to the cabinet of birds' eggs and nests. In September, 1850, Dr. T. B. Wilson presented an extensive collection made in Paris, by M. O. Des Murs, at considerable cost, through a very long period of time. It contains 3,449 specimens, of 1,281 species and 10 nests. The same gentleman presented Mr. Gould's collection of eggs of Australian birds; it comprises 976 specimens of 303 species, and 33 nests. The aggregate number of specimens of these two col-

lections is 4,425; and of species, deducting duplicates, 1,526, of which number 1,278 are determined.

The total number of birds' nests in the Academy is 214; the number of specimens of birds' eggs 5,056, of which 1,368 species are determined.

The cases contain at this time 4,450 specimens.

This collection of birds' eggs is not equalled by any one in Europe.

### 3. ICHTHYOLOGY.

The collection of fishes is placed in the east basement-room.

In his "Notice of the Academy," in 1837, Dr. Morton says: "The collection of fishes is as yet comparatively inconsiderable. A series of those inhabiting the waters of Guiana has been presented by Dr. Hering. Dr. Burrough has deposited an interesting collection from some of the remoter provinces of India, and the American species have of late received considerable accessions."

There are 750 glass jars or bottles, each containing several fishes in alcohol; and 372 dry preparations, of which 170 are the original specimens described by C. L. Bonaparte, in his "Fauna Italica," and presented by Dr. T. B. Wilson. The number of species has not yet been ascertained. It is estimated that the aggregate number of specimens is at least 1,500, of about 700 species.

This department has received donations from Dr. J. Carson, Messrs. W. B. Maul, Philip Lowry, and others.

### 4. HERPETOLOGY.

The collection of reptiles is placed on the galleries of the east and north-east basement-rooms.

From Dr. Morton's "Notice," in 1837, we learn that this department is especially indebted to the exertions of Dr. Harlan, Dr. Burrough, Dr. Blanding, and Dr. Hering. During the year 1830, the latter gentleman presented upwards of 200 species of the serpents, and other reptiles of the north-eastern regions of South America.

Professor Holbrook has presented the specimens originally de-



scribed in his work on "American Herpetology;" and donations have been received, at different times, from Mr. James Read, Mr. W. S. Vaux, Mr. Isaac G. Strain, U. S. Navy, Mr. B. M. Norman, Dr. Goheen, Dr. C. W. Pennock, Dr. Goddard, Dr. Reynell Coates, Mr. J. H. Couper, Dr. G. Watson, Dr. Hallowell, Mr. W. L. Bispham, Mr. Saml. Ashmead, Mr. Ed. Donnelly, Dr. Ruschenberger, Mr. W. L. Jones, of Georgia, and others. In January, 1851, Professor Franklin Bache presented the collection of reptiles made by the late Dr. Jacob Green.

There are in this department of the museum 1,056 glass jars, or bottles, containing species in alcohol, and 159 dry preparations. The number of specimens is estimated at 2,000; but the number of species has not been ascertained.\* There is also a small collection of eggs of reptiles.

This cabinet, it is believed, will compare favorably with any in the United States, and is not surpassed by many in Europe.

## 5. CONCHOLOGY.

The collection of shells and mollusks is placed in the east basement-room.

According to an estimate made in 1837, this department contained 2,000 species. "The Academy is under particular obligations to Dr. Burrough, Dr. Ruschenberger, Captain Land, Mr. Poulson, Mr. J. K. Townsend, Mr. Nuttall, and Mr. and Mrs. T. Say, for their contributions to the series of marine shells. An interesting part of the collection is formed by the fresh-water and land shells, collected and presented by Col. Long, Dr. Burrough, Mr. Conrad, Mr. Lea, Mr. Hyde, Mr. J. M. Earle, Mr. J. Ronaldson, Dr. Hildreth, and Dr. Pennock."†

Since the publication of the above statement, the collection of shells has been very much augmented.

In the year 1849, Dr. R. E. Griffith presented more than 12,000 specimens, of 4,907 species of shells, which he had collected, during a long series of years, at very considerable cost

\* In December, 1848, the number of species was, batrachia, 120; sauria, 150; ophidia, 242; chelonia? (not stated.)

† Notice of the Academy of Natural Sciences. By Samuel George Morton, M. D. Fourth edition, 1837.

and labor. In the same year, more than 8,500 specimens, of 1,707 species, were added by Dr. T. B. Wilson. Three hundred and twenty-eight specimens of 111 species of Australian, New Zealand, and South Sea Island shells were obtained, in exchange, from the "Australian Museum;" and 204 specimens of 105 species were received from Mr. McAndrew, of England, Dr. Gould, of Boston, Mr. Thompson, of Belfast, Ireland, Mr. Watson, of South Africa, and from other sources.

In the year 1850, 107 species from various localities were presented, principally by Mr. Ed. Verreaux, of Paris, Dr. McCartee, of China, and Messrs. E. T. and Chas. W. Wilson.

This collection contains about 25,000 specimens of about 8,000 species; besides 48 species of cephalopods and other mollusks, and 7 species of ascidiæ, in alcohol.

Dr. Griffith was engaged in arranging this collection at the time of his death.

## 6. ENTOMOLOGY.

The collection of insects is placed in a small room at the northeast corner of the principal saloon.

This department has received large contributions from Dr. Hering, Mr. T. R. Peale, and the late Mr. Thomas Say, who verbally bequeathed his entire collection to the Academy in the year 1834.

In the year 1837, the fine cabinet of coleopterous insects presented by Dr. McMurtrie and Dr. Pickering, was placed in the hands of an experienced entomologist at a distance, to be rearranged and intercalated with the remaining specimens of Mr. Say's cabinet, which had been previously confided to the care of the same gentleman. After five years, the collections were returned to the Academy, in March, 1842, but, unfortunately, in such a state of ruin and dilapidation as to be almost useless.

The destruction of the once fine collection of coleoptera and lepidoptera, discouraged for a time those members who were particularly interested in the study of entomology; but in the year 1843, a new method of preserving these animals was devised, which, it is believed, has proved to be entirely successful; and not long after this date, a spirit of increased activity and energy was infused into the Institution, by rich contributions made to

other departments. The entomologists of the Academy were roused to renewed exertion; and the present collection of insects, it is confidently hoped, although it was commenced, it may be said, not more than five years since, will very soon surpass that which was lost.

The insects are arranged in boxes, made to resemble folio volumes, about two and a half inches thick; two sides of the boxes are glass, protected on the outside by movable covers, like those of a book. A label on the back of each designates the class to which its contents belong; and a catalogue or index is written on the inside of the left-hand cover. The series on the shelves of the cases might be mistaken for a work on entomology in many volumes. The insects are secured in such a manner that both their upper and under surfaces may be readily examined without exposing them to dust or air. Before they are fixed in the boxes, they are exposed to a high temperature in an oven contrived for the purpose, in order to destroy the vitality of those eggs or larvæ they may contain, which have always been more or less destructive to such collections. After the specimens are arranged, all the joints of the boxes are thoroughly closed with poisoned paste, which secures them from the invasion of ravaging marauders.

By this plan, the collection is kept in a perfect state of preservation, and is entirely available for study.

The principal contributors to the entomological cabinet in the past few years, are Mr. Robert Kilvington, Henry Bond Dewey, Esq., Dr. D. B. McCartee, Mr. Wm. Hobson, Mr. Edward Doubleday, Dr. T. B. Wilson, Rev. T. S. Savage, M. D., Mr. Hagedorn, Dr. Gavin Watson, Dr. A. L. Heerman, Dr. Gambel, Mr. Cassin, Dr. John Neill, Mr. Geo. B. Wood, Jr., Mr. Isaac Lea, and others. The donations made are all recorded in the published volumes of the "Proceedings of the Academy."

Of about 6,000 specimens now in the cabinet, 1,500 lepidoptera and 2,500 coleoptera are classed and labelled; but the classification is not yet sufficiently advanced to estimate, with any degree of accuracy, the number of species it contains, belonging to the several families.

## 7. MYRIAPODS AND ARACHNIDANS.

The collection of centipedes, millipedes, and spiders, is placed in the east basement-room.

It contains 27 species of myriapods, and 34 species of arachnidans, in alcohol, besides 9 dry specimens.

This department is indebted for contributions to Dr. Goheen, Mr. Cassin, Dr. Leidy, and Dr. Goddard.

## 8. CRUSTACEANS.

The crabs are placed in the east basement-room.

According to the catalogue of Professor Lewis R. Gibbes, of Charleston, S. C., published in vol. 5, p. 22 (March, 1850), of the "Proceedings of the Academy," the collection contained 175 species of 68 genera. But during the past year additions have been made by Mr. McAndrew and Messrs. E. and C. Wilson; and in February, Dr. T. B. Wilson presented 614 specimens of 230 species, which were part of the collection of M. Guerin Meneville, of Paris; and in December, 1851, another portion of the collection, consisting of 868 specimens, belonging to 183 species of 53 genera.

At this time, the Museum contains 2,054 specimens of 980 species of crustaceans, of which 46 are in duplicate. They have been classed, and a catalogue of them has been completed by Dr. R. Bridges. In addition to those referred to, there is a very large number of specimens in store for exchange.

Of cirrhopeds (barnacles, of various kinds) there are 103 dry specimens, and 10 jars with specimens in alcohol, including 86 species. The principal donors to this department are Dr. C. Nicholson, Dr. R. E. Griffith, Dr. Ruschenberger, Dr. T. B. Wilson, Dr. Leidy, and Mr. Nuttall.

## 9. ANNELIDANS.

The collection of worms, which contains 77 species of helminths in alcohol, and 3 dry preparations, is placed in the east basement-room. Many of these were formerly in the cabinet of Prof. C. S. Rafinesque. The principal donors are Dr. Goheen, Dr. Goddard, Dr. Leidy, and Mr. Cassin.

In February, 1843, Mr. William G. Burke presented, through Mr. Cassin, a collection of parasitic worms, contained in 76 phials.

#### 10. ZOOPHYTES.

The collection of echinoderms (star fishes and sea eggs) consists of 447 dry specimens, and 6 in alcohol. Many of them were presented by Mr. Edward Wilson, during the year 1851. The number of species has not been ascertained. Mr. S. W. Drinker, Mr. W. Thompson, Messrs. Warnick and Argent, and Dr. Griffith, are among the donors.

Under this head are placed 9 species of medusæ in alcohol; 206 specimens of corallines; and 83 specimens of sponges; all of which are placed in the east basement-room.

The principal donors to this department are Mr. G. Ord, Mr. Maclure, Mr. Say, Mr. T. R. Peale, Dr. Harlan, Mr. Hazard, Mr. Lewis Vanuxem, Dr. Nicholson, and Dr. Anderson.

#### 11. BOTANY.

The collection of plants is placed in cases on the north flying gallery, and in a small room, accessible from it, situated at the north-east corner of the principal hall. In the opinion of Dr. Darlington, this herbarium is "one of the richest and most valuable in the United States."\*

This collection, which now contains 46,000 species of plants, had its beginning in a small herbarium formed in the environs of Paris, and presented in April, 1812, by Mr. N. S. Parmantier, one of the founders of the Institution.

This cabinet is indebted principally to Rev. Mr. Schweinitz, and Mr. Nuttall, as well as to Mr. Wm. Maclure, Mr. Z. Collins, Dr. R. E. Griffith, Dr. Pickering, Mr. James Read, Mr. Durand, Mr. Jos. P. Smith, Mr. S. W. Conrad, Dr. Carson, Dr. Bridges, Dr. Goddard, Dr. Zantzinger, Professor C. W. Short, Dr. Peter, Mrs. L. W. Say, Mr. Terry, Mr. J. L. Darlington, of Michigan; Mr. J. M. Greene, Professor C. Dewey, Mr. H. B. Croom, Mr. Wm. Cooper, Mr. Hembel, Mr. Sullivan, and Mr. Gray.

\* Memoir of Wm. Bartram and Humphrey Marshall.

*Schweinitz Collection.*—The Rev. Lewis David Von Schweinitz, who died in the year 1834, bequeathed to the Academy his great collection, made during a period of forty years. This herbarium contained, besides the cryptogamous plants, 23,000 species.

Most of the American species were collected by himself; but many were supplied by Dr. Torrey, Mr. Leconte, Rev. Mr. Dencké, Mr. J. Elliot, Mr. H. Steinhaur, and other correspondents. The European species were supplied by Mr. Van Welden, Dr. Hooker, Mr. Bentham, Dr. Schwaegrichen, Dr. Steudel, Dr. Zeyher, and Mr. Brongniart. The Siberian plants were furnished by Mr. Ledebour, and those of India by Dr. Wallich, and Mr. H. Steinhaur. The Chinese collection was made by Mr. James Read. The plants of the polar region were collected by Captain Parry, and presented by Dr. Hooker; an interesting collection from Labrador, was added by Mr. Kohlmeister, a Moravian missionary, of that country. The South American species were obtained chiefly through M. Von Martius, Dr. Huffel, and Dr. Hering. Dr. Baldwin contributed 3,000 species of plants collected by himself in Buenos Ayres, Florida, and other parts of North America.

*Nuttall Collection.*—Mr. Nuttall, an ardent and distinguished botanist, who for many years pursued his researches in various parts of the United States, presented 3,000 species of North American plants; at a later period his entire exotic herbarium, embracing among others, 1,500 Cape plants, collected by Marson, a large number of New Holland plants, and many interesting species from New Zealand, and the islands of the Pacific, collected by Foster, Labillardier, and others. Subsequently, he presented a complete suite of specimens collected by him in his arduous journey across the Rocky Mountains, to the mouth of the Columbia River, different parts of California, and the Sandwich Islands.

Besides these donations from Messrs Schweinitz and Nuttall, 1,200 species collected in St. Domingo, by M. Poiteau, of Paris, were presented by Mr. Isaac R. Jackson.

Mr. Wm. Hembel presented the entire herbarium of Mr. Solomon W. Conrad, collected chiefly in Pennsylvania and New Jersey; and subsequently, that portion of the herbarium of the late Prof. C. S. Rafinesque, containing the specimens from which the descriptions in his Medical Flora have been made; together with other valuable European and Oriental plants.

Dr. James Trudeau presented the entire herbarium of Mr. Tainturier, collected in the vicinity of New Orleans.

A suite of plants of Texas, collected by Mr. Drummond, was presented by Drs. Torrey and Darlington.

A suite of plants of Arkansas, collected and presented by Dr. Z. Pitcher, U. S. Army.

A suite of Indian Grasses, collected by Messrs. Wright and Arnott, presented by Dr. Torrey.

Mr. James Read presented 400 species, collected by himself in the Islands of St. Croix, St. Thomas, Porto Rico, and Guadeloupe, in the winter of 1837.

Dr. Pickering presented the herbarium of Dr. H. Little, of Boston, collected by himself in the vicinity of that city, and in New Hampshire.

Mr. E. Durand selected from his extensive herbarium 925 species which were not in the Academy's collection, and presented them.

Dr. John Styles, formerly of Valparaiso, but now of Cuba, presented 400 species of plants collected by himself in Chile.

Don Ramon de la Sagra, and M. G. Lobé presented a series of plants of Cuba.

*Menké Collection.*—Through Dr. E. F. Rivinus, the extensive herbarium of Dr. F. Menké, of Pyrmont, Germany, was presented by him to the Academy in the year 1839. It is contained in 37 folio volumes, and comprises more than 7,000 species of 1,298 genera, which were collected between the years 1810 and 1815, in German localities. Among the distinguished botanists who contributed to the formation of this herbarium, are named Thunberg, Sprengel, Bernhardi, Professor Treviranus, Professor Mertens, Roemer, Goenhat, Lehman, Salzman, Rohde, Wendland, Schroeder, Ehrenberg, Schmidt, &c. As nearly all the species in this herbarium are duplicates of those possessed by the Academy, and as very many of them are from cultivated specimens, it is kept distinct.

In 1842, Mr. P. A. Browne presented 300 species of West Indian plants; the Rev. J. P. Durbin, 200 Alpine plants, from the Valley of Chamouni; Mr. R. C. Taylor between 80 and 90 species of West Indian and American plants; and Mr. J. Frampton Watson 64 species from the Andes.

In 1843, Mr. J. N. Nicollet presented 335 species from the

North-Western Territory; and Mrs. Wm. S. Biddle, a collection from Barbadoes.

In 1844, Mr. Jacob Snyder, Jr. presented 300 specimens of Alpine plants; and a donation of 47 species, collected in Missouri, was received from Dr. Engelman.

In 1845, Mrs. Rachel Blanding presented a collection of plants; and in 1846, Dr. Engelman presented 100 species collected in Texas.

In the years 1847, 1848, and 1849, several donations were received, and Mr. R. C. Taylor presented a collection of ferns from New Granada.

In 1850, Mr. Henry Etting, U. S. Navy, presented a collection of plants from the Grand Canary, and the adjoining islands; Mr. R. W. Ravenel, of S. C., 131 species, chiefly cryptogamous; and the Royal Society of Van Diemen's Land, 150 plants indigenous to New South Wales.

In 1851, donations were received from Mr. John Hooper, of New York, and from Dr. Hopkinson, U. S. Navy.

With the exception of the Mencké collection, all the donations have been incorporated into the herbarium of the Academy, which is arranged according to the natural system of Jussieu. This work has been accomplished at different periods by the labors of Mr. Nuttall, Dr. C. Pickering, Dr. Carson, Dr. Goddard, Dr. Bridges, and Dr. Zantzing.

Besides the plants, this department comprises about 1,000 specimens of fruits, and seed-vessels; and a collection of samples of different kinds of woods.

#### ETHNOLOGY.

In the department of ethnography the property of the Academy is not very extensive; but if the collections which are on deposit be included in the account, it is large and valuable.

In the cases on the south flying-gallery there are 968 human crania, including 26 casts of crania, of which 50 belong to the Academy. The rest, 918, constitute the collection deposited by the late Dr. Morton. Of the whole number, 690 were presented to him by 138 donors, a fact which shows the number of friends Dr. Morton interested actively in his favorite branch of natural science. This collection is one among the striking monuments of



his industry, and of the kindness of his numerous friends in every quarter of the globe. It was commenced in 1830, when Dr. Morton sought in vain to procure, in Philadelphia, a Malay or Mongolian skull.

The collection now contains crania illustrative of 22 varieties of the Caucasian race; two varieties of the Mongolian race; 13 of the Malay race; 69 of the aboriginal American race; 21 of the negro race; 8 of the mixed races; besides skulls of lunatics, and idiots of several races. For a more detailed account of this collection, I beg leave to refer to Dr. Morton's catalogue, printed November, 1849.\* Since the publication of this catalogue, 51 human crania have been added to Dr. Morton's cabinet; of these 24 were presented by Prof. Retzius; 3 by Dr. Joseph Hopkinson, U. S. Navy; 2 by Mr. Amory Edwards; 1 by Mr. Gliddon; 1 by Dr. Kennedy; 1 by Lieut. Steele, U. S. Navy; and 1 by Mr. W. A. Gliddon.

\* Catalogue of skulls of man and the inferior animals in the collection of Samuel George Morton, M. D., &c. &c., Philadelphia, 1849.

The principal donors named in the catalogue are Wm. A. Foster, Esq., who contributed 135; Dr. J. R. Cisneros presented 53; Dr. Ruschenberger, 39; Wm. A. Gliddon, Esq., 19; Professor Retzius, 17; M. Clot Bey, 15; Dr. C. Hufnagle, 13; J. N. Nicollet, Esq., and Dr. Dornick, 12 each; Dr. Jones, Dr. Burrough, and Dr. S. M. E. Goheen, 11 each; J. J. Audubon, Esq., 10; Dr. J. K. Townsend, Dr. B. B. Brown, Dr. E. A. Abadie, U. S. Army, and Dr. Mead, each 9; G. R. Gliddon, Esq., Dr. Usher Parsons, and Dr. S. P. Hildreth, each 8; Dr. Joseph Smith, Don J. Gomez de la Cortina, and Dr. H. S. Reynolds, U. S. Navy, each 7; J. A. Lapham, Esq., A. C. Harris, Esq., Dr. S. J. Oakford, and Dr. Joseph Walker, U. S. Army, each 6; Dr. Joseph Carson, Dr. James Mease, H. Piddington, Esq., Dr. Charles Nicholson, Dr. M'Dowel, Dr. J. N. Casanova, Dr. Jos. Wilson, U. S. Navy, Dr. Edwin Fiessell, Dr. Geo. Engleman, and Mr. John Watson, each 5; Dr. Z. Pitcher, U. S. Army, Dr. C. Pickering, Dr. Geo. C. Leib, and Dr. R. S. Holmes, U. S. Army, 4 each; Dr. P. B. Goddard, Dr. J. W. Russell, Dr. Hardy, Dr. E. H. Davis, with Mr. Squier, Mr. I. G. Strain, U. S. Navy, Lieut. Meigs, U. S. Army; Dr. P. Gregg, Ex-President Vargas, and Mr. O. S. Fowler, each 3; Dr. J. K. Mitchell, Wm. Cobb Hurry, Esq., Dr. Le Beau, Dr. Waters Smith, U. S. Navy; Dr. F. Turnpenny, Dr. Paul Swift, Dr. John Houstoun, M. Fresnel, Dr. A. Wislizenus, Dr. Wm. M. Wood, U. S. Navy, Capt. Fremont, Dr. Lipincott, Dr. J. Macartney, Dr. Thos. Page, Dr. J. Andrews, Dr. Martin, U. S. Army, and Col. J. J. Abert, U. S. Army, each 2. There are also named 67 gentlemen who each contributed one cranium to this truly valuable collection, which has been formed at the price of twenty years' persistent labor, and an expenditure of considerable money; for even donations were seldom free of charges for freight, &c. &c.

In a closet, opening on the passage to the stairs, at the south-east extremity of the principal hall, are four human mummies, 1 Egyptian and 3 Peruvian; 1 mummied calf, 2 hawks, 6 ibis, and 32 serpents, all Egyptian.

The Egyptian mummy, which is inclosed in its original sarcophagus, is from the catacombs of Thebes. It was deposited by John L. Hodge, Esq., in June, 1846. The other mummied objects, from Egypt, were deposited by George R. Gliddon, Esq., in June, 1848.

The Peruvian mummies were deposited by Dr. Morton. They were procured from an ancient cemetery near Arica, and presented by Mr. Wm. A. Foster, who states that, "In many of the tombs, three or four bodies were found clustered together, always *in the sitting posture*, and wrapped in three or four thicknesses of cloth, with a mat thrown over all."

### 13. COMPARATIVE ANATOMY.

The most prominent object of the department of comparative anatomy, in 1837, was a "perfect skeleton of the Indian rhinoceros (*R. indicus*), brought from the interior of Hindostan, by Dr. Burrough, and presented to the Academy," by a club of members. At that date, the aggregate number of crania of vertebrate animals, including about 200 human skulls, in Dr. Morton's collection, was not many above 500.\*

Since that date large additions have been made to this department of the Museum. Besides the 918 human crania above mentioned, the collection deposited by Dr. Morton now contains 278 crania of mammals, 271 crania of birds, and 88 crania of reptiles and fishes, or an aggregate of 1,555 skulls of vertebrate animals.

The Academy's collection has received contributions from Dr. Blanding, Dr. Godon, Dr. Goheen, Prof. Baird, Dr. Watson, Captain S. Drinker, Mrs. Mary A. Hamilton, Dr. Leidy, Mr. S. W. Woodhouse, Dr. Griffith, Dr. Meigs, Dr. Hallowell, Mr. Ashmead, Dr. T. B. Wilson, Dr. P. B. Goddard, and others.

In the year 1849, Dr. Goddard presented 106 crania of mam-

\* Morton, Notice of the Academy of Natural Sciences. 4th edition, p. 17, 1837.

mals, 30 of birds, 4 of reptiles, 3 of fishes, 8 skeletons of mammals, 6 of birds, 2 of reptiles, besides 21 pieces of comparative anatomy. And Dr. T. B. Wilson added 22 skeletons of birds, and 5 pieces of comparative anatomy.

During the year 1850, Dr. T. B. Wilson presented articulated skeletons of 165 species of birds, 52 sterna, 10 crania, and 3 other pieces of birds. M. De la Berge presented 53 sterna of birds; and 16 skeletons of birds were received from Mr. Goadby; 5 skeletons, 3 crania, and 3 sterna of birds, were presented by MM. Verreaux and Lambert, and Dr. Blanding; and a donation of 2 skeletons and 3 crania of mammals was received from Drs. Blanding and Johnson, and Mr. Schafhirt.

The Academy possesses 20 skeletons of mammals, 213 of birds, 18 of reptiles, and 12 of fishes, or an aggregate of 263 articulated skeletons; 171 crania of mammals, 477 crania of birds, 49 crania of reptiles and fishes, 100 sterna of birds, and 23 pieces of comparative anatomy.

Including those on deposit, the collection consists, independently of the skeletons and pieces of comparative anatomy, of 449 crania of mammals, 748 crania of birds, 98 crania of reptiles, and 39 crania of fishes.

The collections in comparative anatomy are displayed in cases on the floor of the south side of the main hall.

Among the recent additions is a fine skeleton of a narwhal, the tusk of which exceeds eight feet in length, presented by Dr. E. K. Kane, U. S. Navy.

#### 14. MINERALOGY.

The collection of minerals is arranged in the east basement-room.

As early as March, 1812, Mr. John Speakman, in anticipation of the wants of the Institution, purchased from Dr. Seybert, for the sum of \$750, a collection of European minerals; but this acquisition bears a later date on the records of the Institution. In July, of the same year, \$370 were subscribed by members to purchase Mr. Godon's cabinet; but at the auction, Prof. B. S. Barton bid a larger sum and obtained it. The late Mr. Joseph Watson (of the firm of Watson and Bell) purchased the same collection at Dr. Barton's sale and presented it to the Academy.

Among the first donors of minerals were Dr. Troost, Mr. Isaac Lea, Dr. Hays, and Mr. S. Hazard. Mr. Wm. Maclure presented large and valuable collections; and Mr. H. Seybert, Joseph P. Smith, and Dr. Thomas M'Euen, contributed largely to this department. The contributors to the mineralogical cabinet since its commencement have been very numerous. Besides those named, the most conspicuous are Mr. J. P. Wetherill, Dr. Burrough, T. Nuttall, Dr. Blanding, Dr. Morton, Dr. Griffith, Mr. R. C. Taylor, Baron Struve, Dr. Carson, Mr. W. S. Vaux, Mr. S. Ashmead, Mr. T. F. Moss, Mr. Thomas Fisher, Dr. Casarnova, Mr. Isaac L. Chipman, Dr. Bent, Dr. Goddard, and Dr. George B. McClellan.

Dr. T. B. Wilson, in the course of the past five or six years, presented 1,760 specimens, mostly European, many of which are rare. Amongst them are fine suites of carbonate of iron, tin, blende, galena, &c., and an extensive variety of forms of fluor and calcareous spars from Cumberland and Durham, England; and many fine specimens from Germany, Hungary, and Transylvania. Among the gems is a fine suite of native crystals of diamond from Brazil.

Dr. Heerman has presented a series of valuable specimens of native gold from California; and we are indebted to the late Dr. George B. McClellan for fine specimens of the same mineral from Virginia.

Mr. W. S. Vaux presented an extraordinarily large crystal of beryl, from Ackworth, New Hampshire; it measures 3 feet 3 inches in circumference, and weighs 185 lbs.

Mr. Boucier, of Lyons, presented an admirable series of crystals of green and blue carbonate of copper, and of red oxide of copper, of every variety of form.

Though the cabinet is comparatively rich in foreign, it is very deficient in American minerals. From the vast number of donations 4,152 specimens have been selected, labelled, and arranged by Messrs. Vaux, Ashmead, and Gambel, who have been for several years devoted to this department of the Museum.

It is believed that, notwithstanding the care of the various gentlemen who have had charge of this department, from time to time, it has suffered losses in the various transportations and changes of location to which the Museum has been subject.

## 15. GEOLOGY.

The small collection of rocks is in the east basement-room. Mr. Wm. Maclure was among the earliest to contribute to the formation of a geological cabinet. He presented more than 1100 specimens of the primitive transition and basaltic rocks of Europe, collected by himself while travelling between the Mediterranean and Baltic seas. He also presented specimens of the rocks of several of the West India Islands.

Dr. R. E. Griffith presented a series of lavas, collected from various currents ejected from Mount Vesuvius at different periods.

Dr. S. G. Morton presented a series of the greenstone rocks of Scotland, and a section of Salisbury Craigs, near Edinburgh, collected by himself. Rocks from the northern shore of Lake Superior were presented by Dr. Z. Pitcher, U. S. Army. Specimens collected from the route of the Erie and Hudson canal, were received from the Hon. Stephen Van Rensselaer of New York. To Mr. J. Frampton Watson, to Mr. G. R. Gliddon, to Mr. J. Hamilton Couper, and to many others, this department is indebted for donations.

The number of specimens in the cabinet is now 545.

Among these is a slab of flexible sandstone from Brazil, presented by Dr. T. B. Wilson, so arranged that its extraordinary flexibility may be readily shown.

Mr. Isaac Lea presented a column of basalt from the Giant's Causeway, Ireland, which is worthy of notice by the visitor.

## 16. PALÆONTOLOGY.

In October, 1815, Mr. Jacob Gilliams presented a collection of fossil shells, found by himself in St. Mary's County, Maryland, where he had gone nearly two years prior to that date, expecting to join the military forces then in that neighborhood. This is the earliest record of a donation to the department of palæontology. In November, of the same year, a collection of fossils, from Sunbury, Pennsylvania, was presented by Dr. Janney. In the course of the year 1816, fossils of New Jersey and of Maryland were received from Mr. S. Wetherill and Dr. Mease; and in

1817, fossils from Huntsville, Alabama, were presented by Mr. J. D. Clifford, and a considerable collection from Europe, by Mr. Wm. Maclure; and in 1818, the latter gentlemen made important donations. During the same year, Dr. R. E. Griffith, and Mr. A. Jessup, presented collections of fossils.

Subsequently, a series of vegetable impressions from the coal districts of Pennsylvania, Virginia, Ohio, and Rhode Island, was presented by Drs. Hays, Griffith, Morton, and Mr. B. Say.

Mr. Samuel Hazard presented a collection of pentremite, encrinite, and other fossils from the vicinity of Huntsville, Alabama.

A series of fossil shells, illustrating all the formations of the *Paris basin*, was presented by Messrs. Keating, Vanuxem, M'Euen, Lesueur, and Pennoek.

A series of fossils from the oolite of England, was presented by Dr. R. E. Griffith.

Mr. and Mrs. T. Say, presented a series of European and American fossils, chiefly from the eocene strata.

Dr. S. G. Morton presented fossil shells, crustacea, and zoophytes, illustrative of the cretaceous deposits of the United States.

Mr. T. A. Conrad presented an extensive series of the tertiary fossils of Maryland, Virginia, Alabama, &c., chiefly collected by himself.

Mr. J. Price Wetherill deposited two distinct collections.

The *Steinhaur collection*, which was made in England about forty years ago, by the late Rev. Henry Steinhaur, is particularly rich in fossil plants, from the coal basin of Yorkshire, and in testacea and zoophytes from the lias, oolitic, and cretaceous formations of various parts of Great Britain.

The *Clifford collection* was made by the late Mr. Clifford, of Cincinnati, and purchased by Mr. Wetherill. It contains an extensive and beautiful series of fossil remains from the carboniferous deposits of the valley of the Mississippi; together with the skeleton of the *Megalonyx laqueatus* of Dr. Harlan, and numerous bones and teeth of the mastodon, elephant, &c.

In 1837, the collection of fossils was estimated to contain nearly 4,000 specimens, including those on deposit. In July, 1846, Mr. Wetherill presented his entire collections, which had been previously deposited; and at the same time, conjointly with

Dr. T. B. Wilson, he made a donation of the collection deposited by the late Mr. R. C. Taylor, in August, 1845.

The *Taylor collection* was designed to illustrate the principal English formations. The specimens, about 4,000 in number, were selected by Mr. Taylor, with great care, from their respective localities, during a period of twenty-five years, commencing in 1805.

In 1841, additions were made by Dr. Engelman, Dr. Morton, Mr. Ashmead, Prof. Johnson, and others. In 1842, the principal donations were received from Mr. Joseph Brano, and Mr. G. R. Gliddon; and in 1843, from Dr. John Locke, Mr. J. Hamilton Couper, and others.

In 1845, fossils were presented by Dr. T. B. Wilson, Mr. Edward Harris, Mr. Julius S. Taylor, Mr. J. Tremper, Peter A. Browne, Esq., Prof. R. W. Gibbes; a collection made at Cape La Heve, by Mr. Chas. A. Lesueur, and a collection made on the Sivalik Hills, by Capt. T. B. Cautley, of the Bengal army.

In 1846, besides those above mentioned from Mr. Wetherill and Dr. T. B. Wilson, collections were presented by Mr. Pancoast, and Mr. Lewis Germain.

In 1847, Mr. T. Conrad presented about 2,000 specimens, from the miocene of France, the eocene, cretaceous, oolitic, mountain limestone, and silurian formations of England and France. Mr. R. C. Taylor presented an extensive collection of very large and beautiful specimens of the coal plants of Pennsylvania, besides other fossils. Dr. F. Roemer presented fossils from the green sand of Germany; and Mr. W. A. Pease, a collection of the silurian fossils of New York. Numerous specimens of coal plants were received from Prof. W. R. Johnson, and various fossils from other sources. Dr. Wilson deposited five very nearly perfect skeletons of fossil saurians of the lias formation; they embrace one species of plesiosaurus, three species of ichthyosauri, and the teleosaurus, or Gavial de Boll.

In 1848, the Honorable Court of Directors of the East India Company presented 124 casts of fossils from the Sivalik Hills, representing 36 species of 25 genera of mammals; 1 species of bird; 5 species of 4 genera of reptiles, and 1 species of fish. A fine cast of the cranium of the *Sivatherium giganteum* was received from Dr. Thomas Horsfield, Curator of the East India

Company's museum; and one half of the lower jaw, and several teeth of the fossil *Tapirus Americanus*, from the late Dr. Carpenter, of New Orleans. The professors of the *Jardin des Plantes* presented several casts of *Anoplotherium* and *Palaotherium*,\* and Mr. Joseph Culbertson deposited unique specimens of a fossil mammal, the *Poebrotherium*. Dr. Wilson deposited a very perfect specimen of *Ichthyosaurus intermedius*; and presented Mr. Conrad's collection of American fossils, which includes Dr. Morton's originals from the cretaceous formation, and consists of about 8,000 specimens of 1,000 species: a general collection of British fossils, which includes selected specimens from the cabinet of the late Miss Bennet, of England, and contains 9,402 specimens of 2,935 species: a collection of German fossils, containing 650 specimens of 500 species: and a collection of Italian fossils from the tertiary of Piedmont, containing 2,000 specimens of 600 species, the whole forming an aggregate of 17,207 specimens of 5,545 species. Besides the above, 128 specimens have been received from several different sources.

In the year 1849, the American Philosophical Society deposited its large and very valuable collection of mammalian fossils in the Academy. Dr. T. B. Wilson presented 1,552 specimens of 658 species of British fossils; and from other sources, chiefly from Dr. Morton, Mr. Verreaux, of Paris, and Messrs. Budd and McMinn, 197 specimens were received.

In 1850, Dr. T. B. Wilson presented 88 specimens of bones of different species of *Dinornis* and *Palapteryx*, obtained in New Zealand by Walter Mantell, Esq., of London. This collection contains a complete foot of *Dinornis giganteus*. Dr. Joel Y. Schelly, of Hereford, Pennsylvania, presented 58 fragments of Enaliosaurian(?) bones, found in Lehigh County, Pa. M. Ed. Verreaux, of Paris, presented 300 specimens of 255 species of fossil shells, from different formations in France. Donations were received also from Mr. Joseph Culbertson, of Carlisle, Mr. Ogden, of New Jersey, Mr. Moss, and Dr. Budd.

In the year 1851, donations were received from Mr. Joseph Jones, Mr. Ledyard Linklaen, Dr. C. H. Budd, Dr. J. C. Fisher, W. Parker Foulke, Esq., Mr. M. Maslin, Prof. J. F. Frazer, Prof. W. E. Horner, Dr. T. B. Wilson, Dr. C. D. Meigs.

The collection is placed in cases on the floor of the principal



hall; the fossils of America are in the southern series; and those from other parts of the world in the northern and middle series of cases. The arrangement of this extensive cabinet is not yet complete.

The following summary will indicate to the reader the extent and value of this department of the museum.

The number of fossils labelled and displayed in cases, under glass, is 14,798, as follows:—

	American.	Foreign.
Silurian, . . . . .	2,936	
Coal, . . . . .	89	244
Cretaceous, . . . . .	1,162	1,526
Eocene, . . . . .	481	1,231
Miocene, . . . . .	386	1,132
Pliocene, . . . . .	1,176	1,405
Wealden, . . . . .		158
Oolitic, . . . . .		1,307
Lias, . . . . .		855
Muschelkalk, . . . . .		201
Keupferschiefer, . . . . .		504
	<hr/> 6,230	<hr/> 8,563—14,798
In drawers, ready to be arranged,		5,799
In boxes, not yet unpacked,		2,826

The aggregate number of specimens, illustrative of palæontology, is 23,518.

In the enumeration of this department, a tray, or group, though in some cases ten or twenty fossils are under one label, has been counted as one specimen. If every individual fossil were counted, it is estimated, the aggregate would be at least 60,000.

## 17. CHEMICAL AND PHILOSOPHICAL APPARATUS.

The collection of chemical and philosophical apparatus is not very extensive.

The Academy is indebted to the late Dr. Parrish, for sundry pieces of chemical apparatus; to the late Wm. Maclure for three

microscopes, an air-pump, a mineralogical apparatus, an electrical machine, an inflammable air lamp, and a five feet achromatic telescope, with an aperture of three and a half inches; the last was presented in 1841; to the late Dr. Troost, for Wollaston's reflecting goniometer; to the late ingenious Isaiah Lukens for a most excellent clock, manufactured by himself, and presented in the year 1818. A club of members, in 1843, presented a copper apparatus, or oven, for disinfecting zoological specimens.

In July, 1847, Mr. Henry Seybert deposited, for the use of members of the Institution, a collection of chemical apparatus, consisting of 1,500 pieces, in glass, earthen-ware and fire-clay, porcelain, agate, platina, and other metals, with a variety of scales and weights.

In 1851, Prof. J. K. Mitchell deposited, for the use of the members, a microscope of the manufacture of Oberhäuser; and Mr. John Price Wetherill deposited one of the manufacture of Pritchard.

#### 18. LIBRARY.

The library commenced in April, 1812, with a few volumes given by Mr. John Speakman and Dr. Mann. Among the early patrons of the library, Mr. William Maclure, R. E. Griffith, and Zaccheus Collins were prominent. The donations of Mr. Maclure alone, up to the time of his death in 1840, amount to 5,232 volumes. Lists of the names of the donors to the library are appended to each half of several volumes of the Journal of the Academy; they are too numerous to be cited here. In the year 1841, the library contained 7,000 volumes, since which date the number has been nearly doubled.

Very few volumes have been purchased or received from public sources; almost all have been gifts from individuals or societies devoted to the cultivation and diffusion of knowledge. Some are received in exchange for the publications of the Academy. The donors are very numerous. Those who have presented the largest number of volumes since the year 1840, are Dr. T. B. Wilson, Mr. Edward Wilson, and Dr. R. E. Griffith.

A manuscript catalogue of the library was prepared by Dr.

Hays, assisted by Mr. Keating; and, subsequently, the library committee, consisting of Dr. Samuel George Morton, Dr. Charles Pickering, Dr. Thomas McEwen, Prof. Walter R. Johnson, Dr. Robert Bridges, and Dr. Joseph Carson, prepared another catalogue on a different plan, which was printed October, 1836. At that date the library contained 6,890 volumes, exclusive of duplicates, and 435 separate maps and charts.

The number of volumes for circulation is limited. It has been generally considered desirable that the library should be for reference chiefly, and the library apartment a reading-room, open freely to the members and strangers properly introduced. The use of large and costly works and periodicals is restricted to the hall.

The following statement exhibits the number of volumes in each department, on the 31st of December, 1851. The library is placed in the west and south-west basement-rooms.

Natural Sciences . . . . .	3,626
Anatomy and Physiology . . . . .	327
Voyages and Travels . . . . .	809
History and Geography . . . . .	525
Transactions of Societies, Journals, Memoirs, &c.	2,323
Dictionaries of Arts and Sciences . . . . .	576
Maps (bound in volumes) . . . . .	22
Chemistry and Physical Science . . . . .	339
Historical Documents, of all descriptions . . . . .	1,856
Antiquities and the Fine Arts . . . . .	428
Miscellaneous . . . . .	1,451
Not recorded in Catalogue . . . . .	350
Pamphlets, and parts of works in course of publication, when bound . . . . .	750
	<hr/>
	18,382

It is remarkable that so large a collection of books should have been made without the assistance of a library fund, the establishment of which has long been deemed an important object. But the treasury of the Society has never been more than sufficient to meet the demands against it for purposes and objects necessary to the care and preservation of the Museum.

## SUMMARY.

Mammals . . . . .	636
Birds . . . . .	27,000
Birds' nests . . . . .	214
Birds' eggs . . . . .	5,056
Fishes . . . . .	1,500
Reptiles . . . . .	2,000
Shells . . . . .	25,000
Insects . . . . .	6,000
Crustaceans . . . . .	2,054
Cirrhopods . . . . .	113
Annellidans . . . . .	80
Echinoderms . . . . .	453
Medusæ, Sponges, and Corallines . . . . .	298
Plants . . . . .	46,000
Ethnological Specimens . . . . .	1,015
Comparative anatomy . . . . .	1,720
Minerals . . . . .	4,152
Rocks . . . . .	544
Fossils . . . . .	23,518
Apparatus . . . . .	1,513
Books (volumes) . . . . .	13,382

The Museum contains an aggregate of 148,876 specimens of natural history.

These statements will convey an idea of the present condition of the Academy, and of the facilities it affords for the study of the various branches of natural science.

But there are questions yet to answer. Whence sprang this edifice, this centre, from which radiate almost countless paths to truth, leading to every region, to every domain in Nature, accessible to the inquisitive impulses of the human mind? To whom are we indebted for these charts, the buoys and beacon-lights to guide us over the ever-expanding ocean of truth? To whom do we owe acknowledgments for these means of fathoming the depths of natural science, and of avoiding the rocks of error, as we sail smoothly and in safety, though slowly it may be, on the vast expanse of human investigation, beset by deceptive appearances, doubts, and darkness?

We may justly expect the congratulations of the public on our academic possessions, the Museum and Library; and it will detract nothing from their value to permit the credit of these acquisitions to inure to our academic fathers. The Chinese teach that the praiseworthy achievements of children make up the glory, not of themselves, but of their ancestors.

The facts acquired in science, the improvements achieved in the arts by Americans, as well as their military and naval success since the days of the Revolution, combine to add lustre to the name of the Father of his country; and to rear an ever-growing monument to his memory, more striking and more durable than the loftiest structure of marble within the power of man to raise. The dignity and power of a nation are commensurate with the intelligence of the people; and its reputation and respectability abroad, will be in proportion to its extent. The increase and diffusion of knowledge, especially in a republic, are worthy of the loftiest ambition of the patriot; he who contributes to these ends, assists to spread and perpetuate human liberty throughout the world.

The Academy of Natural Sciences, owes its origin to the joint labors of a few individuals, somewhat influenced by circumstances. In the year 1810, the population of Philadelphia was 96,664 (the county included), and though it was the principal city of the Union, it contained few places of public amusement. The Chestnut Street Theatre was closed throughout the summer, and in the winter season was open only three evenings in the week; but it was not always fully encouraged. It had a rival in Ricket's Circus, which was nearly opposite. The Philadelphia Museum, founded by C. W. Peale, in 1784, and removed into the State House in 1802, was a place of daily resort. A few public gardens, some taverns, and two or three oyster-cellars, constituted the common attractions of the idle young men of the time.

At that period, the population of the United States included very few persons devoted to the investigation of natural objects; it may be said, there was not an American naturalist of distinction in the Union. But in Pennsylvania, there were several gentlemen who had acquired reputation in the cultivation of botany, among whom the Bartrams, the Muhlenbergs, and Bartons were conspicuous. Alexander Wilson had commenced the publi-

cation of the American Ornithology ; the first volume appeared in September, 1808, the second in January, 1810, the fifth and sixth in 1812, and the seventh in April, 1813: the author died in August, 1813, leaving his great work incomplete.

The Natural Sciences attracted very little attention from the public ; and the very few persons who cultivated them, contended with many difficulties. There were neither cabinets to awaken, nor libraries to gratify a desire to become acquainted with the wonders of the creation. There were in the city two or three collections of minerals in the possession of gentlemen who had brought them from Europe ; but they were not accessible to the public. There was no book on mineralogy for sale in this country ; and a gentleman who was then a young mineralogist, assures me that he gathered minerals, and submitted them to Dr. Seybert, who kindly named them for him. That vulgar and ephemeral curiosity which manifests itself in a desire to see what is not commonly beheld in nature, or in art, expended itself at the Philadelphia Museum, in which were collections of implements used by the aborigenes of the country in war and peace, specimens of natural history, pictures, and whatever in the arts was calculated to excite the wonder of the ignorant or admiration of the instructed. The acquisition of a monster was more valuable, in the estimation of the director of the museum, than a normal specimen ; a chicken with three legs, or a calf with two heads, attracted more attention than the rarest bird or beast of true proportions. A cajoling fiction, the "perpetual motion," excited more astonishment than the proof of antediluvian life exhibited in the skeleton of a mastodon. This was among the most valuable specimens in the museum, which, according to Dr. Mease, contained in 1811, about 200 mammals, and about 1,000 birds. But, meagre as it was, this collection was not freely accessible to students of natural history ; for the purposes of study it was unavailable.

There were some young persons, however, disposed to study the laws of the creation. Though possessed of little information, they were prone to fall into discussions upon natural phenomena, and it is probable, they not unfrequently dealt in abstractions and wild speculations. All of them were occupied during the day, in those vocations upon which they respectively depended for support ; in the evening, they met without appointment at such

places of common resort as the city afforded for those of their social position. Comparison of ideas, soon forced upon them a conviction that they were ignorant of even the rudiments of those branches of knowledge which had attracted their attention. All professed to be in search of truth, and to desire to free themselves from error and prejudice of every kind. They probably found that conversations upon unusual topics, within ear-shot of strangers met with at public places, provoked unwelcome attention; and that discussions pursued irregularly and without method, were not likely to be profitable.

At the period referred to, Mr. John Speakman was established as an apothecary, at the north-west corner of Market and Second Streets. He was born in Bucks County, Pa., and belonged to the religious society of Friends. His father was strongly opposed to the institution of slavery, and refused to use any article known to be the product of slave labor. Young Speakman was zealously religious. He possessed a speculative mind, and an eminently benevolent disposition. The unworthy conduct of a seemingly pious "Friend," and other circumstances not necessary to particularize, led him to habits of intense thought and reflection. But he had acquired very little knowledge of the laws of nature from books, and hence he encountered many difficulties in forming definite conclusions. He however assumed as an axiom, that the evils which men commit are due to their ignorance of what is best adapted to secure their own good and happiness; and that want of knowledge of the laws of nature is the source of all social evils. He therefore earnestly sought to improve the condition of mankind by seeking knowledge himself, and imparting what he acquired to others. Yet he did not devote himself methodically to study, but sought information in conversation with those friends and acquaintances who possessed congenial tastes. He found it pleasant to glean knowledge from the remarks of the many intelligent persons who frequented his shop, which became a centre of the literary and scientific gossip of the day. But Mr. Speakman's defective training in a country school, did not enable him to give profitable direction to that spirit of inquiry, with which the circumstances of his private life had imbued his mind—a mind at once ingenuous, earnest, and scrupulously honest.

Among his social companions was Mr. Jacob Gilliams, a native

of Philadelphia, and a leading dentist of the day. This gentleman, though the practice of his profession did not permit him to cultivate extensively any branch of natural science, was ever ready to aid and facilitate the labors of its votaries, for the advantage and pleasure he derived from listening to their conversations. He was an intimate associate of Mr. Thomas Say, and, about the time (1808) when Mr. Alexander Wilson was engaged upon his Ornithology, they were in the habit of visiting a relative or connection of Mr. Say, at Kingsessing, Mr. Wm. Bartram, with whom Mr. Wilson was on terms of great intimacy. Mr. Gilliams attributes his love of nature mainly to the influence of those visits. When a boy, he gathered stones and minerals; and caught caterpillars, and shut them up to observe their metamorphoses. His mother saw, in the gratification of this taste, that his clothes were constantly soiled; and on this account she frequently censured such pursuits.

This brief allusion to the circumstances and the general influences under which these two gentlemen, and some others, lived, as well as the temper of their minds and inclinations at the time, will assist to explain the origin of the Academy.

At one of those accidental meetings, previously alluded to, Mr. Speakman suggested that if they and their acquaintances could be induced to meet together at stated times, where they would be secure from interruption, to communicate to each other what they might learn about the phenomena of nature, they would derive more pleasure and profit than from desultory and irregular conversations. Mr. Gilliams enlarged upon the suggestion. No doubt was entertained of the propriety of forming an association, the members of which should devote their leisure to study natural history. Before the two friends separated, it was agreed they should meet on the following Saturday evening at the residence of Mr. Speakman, and each should invite such of his friends as might be found, on consultation, favorable to the formation of the proposed society.

On the evening of the 25th of January, 1812, in accordance with the engagement above stated, Dr. Gerard Troost, Dr. Camillus Macmahon Mann, Messrs. Jacob Gilliams, John Shinn, Jr., Nicholas S. Parmantier, and John Speakman, assembled at the residence of the gentleman last named.

Mr. Speakman officiated as Chairman, and Dr. Mann acted



as Secretary, by the unanimous request of the company. The minutes are described to be those of "a meeting of gentlemen, friends of science, and of rational disposal of leisure moments."

It may be stated, after a careful examination of the archives and the traditions in the Society, that at this first meeting various plans of a society were submitted and discussed, and that, after having agreed upon the general basis, the details of organization were referred to a committee.

It was agreed that the exclusive object of the society should be the cultivation of natural science.

A memorandum of a conversation which occurred at this meeting, informs us that the founders clearly perceived the importance of the work in which they were about to engage, and entertained, vaguely it may be, most agreeable anticipations of the future extent and eminence of the institution. They clearly perceived that "the operations of nature," to use the language of the memorandum, "demand unprejudiced, attentive, and severe scrutiny; and, [in order] that men may aid each other by a comparison of observations, their discussions must be free." It was said that sectarians "are prone to oppose the promulgation and development of any newly-discovered fact, which to them seems likely in the least to militate against their cause or dogmas; and it was from such motives that men of science, in the dark ages, experienced so much persecution; and they have experienced persecution even to our own time, until truth became too powerful for their opposition."

For such reasons, it was feared that political or religious disputants, should they become members of the society, might exert an unhappy influence on its prosperity. The founders hoped that all the members elected would be lovers or cultivators of science and polite literature; and while all were to be unquestioned upon their religious and political creeds, the wand and the sceptre were to be laid down at the doors of an institution devoted entirely to science. It was determined that neither religion nor politics, in any shape or form, should be even alluded to at any meeting of the society; and it was perhaps from this determination the erroneous notion sprang, which according to tradition prevailed with some, that the object of the institution was to favor religious infidelity.

The company resolved itself into a committee of organization;

appointed Mr. Speakman treasurer, and adjourned to meet February 1st, to report progress. The gentlemen named had several meetings during the months of February and March, at the residence of Mr. Speakman : on these occasions the organization of the Society was the only subject of conversation.

The gentlemen were reluctant to be continuously indebted to the hospitality of Mr. Speakman for a place of meeting; and in the month of March held two or three sessions at a public house in Market, or High Street, near the corner of Franklin Place, known as "Mercer's Cake Shop," which is regarded as the first public establishment at which ice-cream was sold in Philadelphia. Under an impression that all visitors to such houses must in courtesy become customers, it was feared that the infant society might degenerate into a club of *bon-vivants*, and for this reason more private accommodation was sought.

At the meeting of the 17th of March, a "Constitutional Act" was discussed and agreed upon; but the present title, 'Academy of Natural Sciences, was employed, for the first time, in the minutes for March 21st. This name was adopted on a suggestion of Dr. Samuel Jackson, at present the distinguished Professor of the Institutes of Medicine in the University of Pennsylvania. On this occasion, the members pledged themselves to a mutual support, in all things pertaining to establishing an academy of natural sciences; and to share the expenses and responsibility which might accrue. They agreed "to contribute to the formation of a museum of natural history, a library of works of science, a chemical experimental laboratory, an experimental philosophical apparatus, and every other desirable appendage or convenience, for the illustration and advancement of natural knowledge, and for the common benefit of all the individuals who may be admitted members of our Institution."

Mr. Thomas Say was chosen a member, and it was determined that, although he had not attended the primary meetings, his name should be enrolled among those of the founders. About this date, Mr. Speakman became acquainted with Mr. Say, and joined him in business under the firm of Speakman and Say. The presence of Mr. Say at the meetings of the Academy, is recorded, for the first time, Thursday, April 16, 1812; after that date, except when away from the city, he was rarely absent from any session of the Society.

It was determined that the founders, seven in number, should constitute a "Committee and Board of Regulations, Management, and Direction."

It was decided, at a meeting of the same day, that the origin of the Institution should date from the 21st of March, A. D. 1812, or the 87th year of the United States, and its anniversary should be on that day. Thursday was fixed for the meetings of the Board of Management, and Saturday for the general session of the Society.

The formation of a society, devoted to the cultivation of natural knowledge, from which the discussion of national, religious, and political questions should be excluded, had been a subject of public conversation for three months, and "many men of scientific acquirements and apparent zeal" had been consulted, and probably invited to join in the enterprise. But up to this date (March 21) only six had formally met together, and they found in their small number, little to encourage them to proceed. They were aware of the difficulties and dangers to which they were exposed; but they bravely determined to push forward. "We cannot dissemble to ourselves," say the founders at this time, "that unless we take on ourselves, among our very small number, a responsibility, as to character and expenses, that may and must be considerable; and, unless we make very extraordinary, zealous, determined, and persevering exertions, the Institution must die in the nutshell, before it can germinate and take root: in fine, that unless we be faithful and honorable to each other, and zealous for the interests of science; liberally devote much time, much industry, much labor, much attention, and any sum of money that may be requisite, such an establishment as the one we desire may never take place, or not for ages, in this community; a society of generous, good-willing emulation for the acquirement, increase, simplification, and diffusion of natural knowledge."

About the first of April, a small room was rented on the second floor of a house on the east side of North Second Street, near Race, No. 121. The ground-floor was occupied as a milliner's shop.

In this small room the nucleus of the present Museum and Library first appeared. Mr. Speakman and Dr. Mann presented books; Mr. Parmantier presented an herbarium collected in the environs of Paris; Dr. Barnes presented a few shells and insects;

Mr. Say a few mounted birds; and Dr. Troost some artificial crystals, prepared by himself. Each member had given something; and, though the "display of objects of science" was "calculated rather to excite merriment than procure respect" at the time (April 16, 1812) when Mr. Say was first introduced to the temple, it was the germ which his assiduous care assisted in developing to the present extent and value.

Dr. John Barnes, who was the first member elected, took his seat on the 18th of April. On this occasion, the Board of Management, which included all the founders, retired to an adjoining apartment for the transaction of business, leaving Dr. Barnes alone to constitute the meeting of the Academy.

In this month the members of the Academy made an excursion to Perkiomen, for the purpose of augmenting the collection of minerals.

On the 7th of May, the officers of the Institution were as follows:—

GERARD TROOST, M. D.,	<i>President.</i>
N. S. PARMANTIER,	} <i>Vice-Presidents.</i>
JOHN SHINN, JR.,	
JOHN SPEAKMAN,	
JACOB GILLIAMS,	<i>Treasurer.</i>
THOMAS SAY,	<i>Comptroller.</i>
C. M. MANN, M. D.,	<i>Conservator.</i>
	<i>Secretary.</i>

On the 15th of August, the collection of minerals previously purchased from Dr. Seybert, by Mr. Speakman, came formally into the possession of the Society. The sum of \$750, which Mr. Speakman had advanced from his private means, was converted into shares of stock of \$20 each, bearing six per cent. interest, which were to be redeemed as soon as the treasury of the Academy would permit. Stockholders only were permitted to vote on questions relating to the property of the Institution; and virtually they controlled the affairs of the Academy. The purchase of this cabinet of minerals, by Mr. Speakman, and the creation of stock to the amount of its cost, formed a chain which bound the members together, without which they might have ceased to meet before the close of the year 1812.

Soon after the Seybert cabinet was added to the Museum, Dr. Troost delivered a course of lectures on mineralogy before the Academy.

The rapid increase of the collections, and the narrow limits of the apartments at No. 121 Second Street, rendered more extensive accommodations necessary. With the approbation of the Society, Messrs. Speakman and Say rented the upper part of a three-storied house on the west side of North Second Street (now No. 78 or 80), the ground-floor of which was occupied as a store for the sale of iron in bars, and other forms. To these apartments, called the Hall of the Academy of Natural Sciences, the collections were removed in the month of September.

The efforts of the infant Academy were devoted to increase the Museum and Library, and to augment the number of members and correspondents. Several persons declined to avail themselves of the election.

At the close of the year 1812, the Academy of Natural Sciences consisted of fourteen members and thirty-three correspondents. Of the twelve members elected, five resigned during the year, and two at a later period. The names of the twelve members are as follows; those of the seven founders are placed first, and those in italics are deceased:—

Jacob Gilliams,	<i>Gerard Troost, M. D.,</i>
<i>Camillus M. Mann, M. D.,</i>	John Barnes,
<i>N. S. Parmantier,</i>	<i>Thomas P Jones,</i>
<i>Thomas Say,</i>	<i>Isaiah Lukens,</i>
<i>John Shinn, Jr.,</i>	<i>Wm. Maclure,</i>
John Speakman,	<i>Joseph Stouse, M. D.</i>

During the year 1813, ten were elected members and seven correspondents; of the ten members, the names of six only remain on the list, namely:—

<i>N. S. Allison,</i>	Jacob Peirce,
<i>Reuben Haines,</i>	<i>Benjamin Say,</i>
Robert Hare,	<i>Alexander Wilson.</i>

Additions were made to the Museum and Library, and at the meetings the members, by appointment, read selections from scientific publications. The organization of the Society still occupied attention. On the 30th of November, a code of by-laws, and on the 6th of December, a constitution were adopted. In the course of the year, Mr. Say delivered before the Academy a series of original lectures on the elements of entomology.

To increase and diffuse a knowledge of the mineral resources

of the State, farmers and others were invited to forward to Messrs. Speakman and Say minerals, which were to be analyzed, and the results published free of cost.

Of twenty-five members elected in the course of 1814, the names of ten remain on the list, as follows:—

<i>Joseph Correa de Serra, LL.D.,</i>	<i>Caleb Richardson,</i>
<i>Robert Frazer,</i>	<i>Joseph Rotch,</i>
<i>Thomas C. James, M.D.,</i>	<i>Benjamin Warner,</i>
<i>Wm. Kneass,</i>	<i>John F. Waterhouse, M.D.</i>
<i>Richard Randolph,</i>	<i>Wm. S. Warder.</i>

Seventeen correspondents were elected during the year.

At one of the meetings of this year, Dr. Waterhouse read a descriptive sketch of the mineralogy of the northern and western environs of Boston. During the spring, a course of popular lectures on botany was delivered, under the auspices of the Society, by Drs. Waterhouse and Barnes, in the rooms of the Agricultural Society. These were the first popular lectures on botany ever delivered in this city; they were attended by more than two hundred ladies, besides a considerable number of gentlemen. This course was repeated in the spring of 1815, in the lecture-room at the south-west corner of Arch and Fifth Streets, pertaining to the Free Quakers. For this last course tickets of admission were presented to the divinity students of the Rev. Dr. Staughton.

The increase of the Museum required larger accommodations than the apartments of the Academy afforded. On the 9th of August, 1814, Mr. J. Gilliams proposed to build a hall for the use of the Academy, on a vacant lot in the rear of his father's residence, at an annual rent of two hundred dollars; but this generous offer was not accepted until April, 1815.

The cabinet and library were moved into the new hall about the end of July. The minutes of the meeting for August 1, 1815, are as follows: "Owing to the confusion of moving from the Old Hall, in Second Street, to the New Hall, Gilliams' Court, Arch Street, between Front and Second Streets, the members assembled judged it most expedient not to organize the meeting for this evening, and accordingly withdrew."

The first period of the history of the Academy extends from the foundation to its establishment in the new hall, erected at the expense of Mr. Gilliams.

The war between this country and Great Britain existed through the same time, from 1812 to 1815, and influenced unfavorably the progress of the Institution. Besides interrupting, to a considerable extent, intercourse with Europe, and thus almost entirely preventing the importation of scientific books needed by the Society, some of its most zealous and active members were drawn off from the peaceful pursuits of the Academy to serve in the camp. Messrs. Say, Gilliams, and Shinn were among the volunteer troops assembled for the defence of the city; and Mr. Speakman and other members assisted in the labor of constructing, in the neighborhood, military works then supposed to be required for the protection of Philadelphia.

Of the founders of the Academy I am able to state very little.

Dr. Camillus M. Mann, the first Secretary of the Society, was a native of Ireland. He served in the Irish rebellion of 1798, against the government, and was employed by the rebels to seek aid in France, from which country he emigrated to the United States. He was accompanied by a distinguished young German artist, Mr. Krimmel, who was drowned near Germantown, in 1823. Dr. Mann removed to Baltimore, where he edited a newspaper for some time. The period of his death I have not been able to ascertain.

Our first Curator, Mr. Thomas Say, whose knowledge, amiability, and devotion to the interests of the Institution, were almost indispensable to the continued existence of the Academy in its early days, was born in Philadelphia, July 27, 1787; and, when he became one of its founders, was in his twenty-fifth year. Mr. Speakman, his partner in business, was ever ready to do all the work of the shop, to enable Mr. Say to devote his whole time to labor in the Academy. Through endorsement for unfortunate friends, the firm and business of Speakman and Say were at an end; and it is related of these servants of science, that they retained scarcely anything for themselves; and that Mr. Say gave to those to whom they had become creditors by endorsement, the contents of his pocket-book, and even the loose change in his purse. After this, he resided in the Hall of the Academy, where he made his bed beneath a skeleton of a horse, and fed himself on bread and milk; occasionally he cooked a chop or boiled an egg; but he was wont to regard eating as an inconvenient interruption to scientific pursuits, and often expressed a wish that he had been made with a hole in his side, in which

he might deposit, from time to time, the quantity of food requisite for his nourishment. He lived in this manner several years, during which time his food did not cost, on an average, more than twelve cents a day. An interesting and instructive memoir of this gentleman was read before the Academy, by Dr. Benjamin H. Coates, December 16, 1834, which was published by order of the Institution.

Of Mr. Jacob Gilliams, our first comptroller, or auditor, and of Mr. John Speakman, our first treasurer, mention has been made. Both are still warm friends of the Institution. As late as the year 1839, Mr. Speakman, at a very considerable sacrifice of his private interests, visited Mr. Maclure, in Mexico, where he spent several months, in behalf of the Academy.

Mr. John Shinn, Jr., one of the first Vice-Presidents, was a native of New Jersey. He was employed as a manufacturing chemist.

Mr. N. S. Parmantier, also one of the first Vice-Presidents, was a native of France. He was a distiller and manufacturer of cordials. He removed to Florida.

Our first President, Dr. Gerard Troost, was born at Bois-Le-Duc, in Holland, March 15, 1776. He was educated in the schools of his native country, and received the degree of Doctor of Medicine from the University of Leyden. In 1801, the College of Amsterdam conferred upon him the degree of Master in Pharmacy, and he practised this art for a brief period, both at Amsterdam and at the Hague. He served twice in the army, first as a private soldier, and subsequently as an officer of the first class in the medical department. During his military service he was wounded twice; once in the thigh, and once in the head.

In 1807, the King of Holland, Louis Napoleon, sent him to Paris, to improve himself in his favorite science. There he became the pupil and companion of the celebrated Abbé René Just Haüy, the author of a new system of crystallography. While in Paris, he translated into the Dutch language, one of the earlier works of Humboldt, "The Aspects of Nature."

He travelled in France, Italy, Germany, and Switzerland, and collected a valuable cabinet of minerals, which he sold to his patron, the king of Holland.

In the year 1809, he was appointed by the king of Holland to visit the island of Java, in the capacity of a naturalist. To avoid the British cruisers, he took passage in an American vessel



from a northern port, beyond the jurisdiction of the French Government, for New York, from which port he proposed to reach the East Indies, under the protection of the American flag. In those days our neutral flag was little respected, either by France or England. The vessel on board of which he had embarked, was captured by a French privateer, and carried into the port of Dunkirk, where he was deprived of his papers, and detained a prisoner, until his real name and character were ascertained by the French Government, when he was released. He proceeded immediately to Paris, and in March, 1810, he was elected a correspondent of the Museum of Natural History of France. About the same time he received a passport, dated Paris, March 5, 1810, which authorized him to embark at Rochelle, on board of an American ship bound to Philadelphia.

The abdication of Louis Napoleon, and other political events in Europe, determined him to become a resident of this city, where he married in the year 1810.

As already stated, he participated in founding the Academy of Natural Sciences, in 1812, and remained its President until the year 1817, when he resigned, and was succeeded by Mr. Maclure.

He was engaged in various manufactures, and about the year 1815, or 1816, his intimate knowledge of mineralogy and chemistry, enabled him to commence the manufacture of alum, on the Magothy River, in Maryland. Previous to that date, the entire quantity required in the arts, which is very considerable, was imported from abroad. This manufacture was so fully established, that since the year 1818, our own country has been able to supply the home demand.

He returned from Maryland to Philadelphia, and in 1821 was appointed Professor of Mineralogy in the Philadelphia Museum, and lectured on the subject in that institution.

About the same period, he was elected the first Professor of Chemistry, in the College of Pharmacy of Philadelphia, but resigned the ensuing year, after having delivered one course of lectures.

Dr. Troost, in the year 1825, in company with Messrs Maclure, Say, Lesueur, and Robt. Owen, removed to New Harmony, Indiana, where he remained nearly two years. In the year 1827, he settled in Nashville, and in the following year, at the instance

of Professor Lindsley, he was elected Professor of Chemistry, Geology, and Mineralogy, in the University of Nashville.

In the year 1831, he was appointed Geologist of the State of Tennessee, which office he filled until it was abolished in the year 1849.

The death of Dr. Troost occurred in his 75th year, on the 14th of August, 1850. He left a reputation for learning, zeal, and amiability, with which his relatives and friends may well be satisfied; and it must be a gratification to know that the first President of the Academy of Natural Sciences was worthy of the sincere respect of every member of an institution which he participated in founding.

A special meeting of the Board of Trustees of the University of Nashville was held, August 15, 1850, and adopted the following resolutions:—

*Resolved*, That by the death of the venerable, learned, and accomplished PROFESSOR TROOST, the University has been deprived of one of its most useful and exemplary instructors—the Country of one of its most gifted citizens—and Science of one of its most faithful votaries.

*Resolved*, That we deeply sympathize with the family of the deceased, and tender to the mourning widow and children the assurance of our heartfelt sense of their irreparable bereavement.

*Resolved*, That as a token of respect, we wear the usual badge of mourning for thirty days, and that we attend the funeral of the deceased.

*Resolved*, That these proceedings be published, and that a copy thereof be communicated by the Secretary to Mrs. Troost.

PHILIP LINDSLEY,

*President of the University, and of the Board of Trustees.*

For a portrait of Dr. Troost, the Academy is indebted to the liberality of Thomas E. Yeatman, Esq., of St. Louis, Missouri.

The success of the Institution is so largely indebted to the generosity of its second President, Wm. Maclure, that it might be neglect to pass him unnoticed in this place.

Mr. Maclure was born in Scotland, in the year 1763, and died in Mexico, in March, 1840. He first visited the United States about the year 1782, and soon afterwards commenced a successful career of commercial enterprise in London. He again visited America in the year 1796, but returned to England in 1803, as

one of the commissioners to settle the claims of American citizens on the Government of France, for spoliations committed during the revolution in that country.

On his return, he made a geological survey of the United States, a description of which was published in the Transactions of the American Philosophical Society. This work, which proves Mr. Maclure to have been the pioneer of American Geology, is dated January 20, 1809.

On the 6th June, 1812, he became a member of the Academy of Natural Sciences, and on the 30th December, 1817, he was elected President, "to which office of confidence and honor he was annually re-elected up to the time of his death, a period of more than twenty-two years."\*

Mr. Maclure was eminently philanthropic and benevolent, and expended very largely of his vast possessions for the general benefit of mankind. He believed that knowledge and intelligence are the true sources of human happiness and well-being; and, acting on this creed, he was ever ready to encourage and foster institutions for the diffusion of knowledge. He entertained the idea of setting up a great school or university, in which every branch of natural science was to have been taught. With this view, he selected New Harmony, Indiana, as the centre of his labors, and, in 1825, induced Dr. Troost, and Messrs. Say and Lesueur to join him in the enterprise.† The scheme failed, and in 1827, Mr. Maclure, in pursuit of health and science, visited Mexico, and subsequently returned there, and died on his way home.

It has been remarked that Mr. Maclure's philanthropy induced him to visit countries while in a state of political revolution, that he might be near to extend assistance to the poor and suffering.

With this motive, and also to take advantage of any circumstances which might occur favorable to the advancement of his peculiar object, which was to educate all mankind, he visited, at different periods of his life, France, Spain, and Mexico, when those states were in a condition of political convulsion. He loved the Academy of Natural Sciences because its objects are in harmony with his views of benevolence and the universal diffusion of

\* A Memoir of William Maclure, Esq., by Samuel George Morton, M. D., &c., 1841.

† Mr. Maclure made an experiment first by establishing a school on Islington Lane, near Germantown.

knowledge, and also because he was attached to the study of natural science for its own sake.

Besides his numerous donations to the Library and Museum, he gave, at different times in the course of his life, to the funds of the Society, and towards building the present hall, an aggregate exceeding \$25,000; and thus he made the Institution a cenotaph to himself, which will carry his name further into the future than any monumental marble that twice the sum would purchase. To his munificence and labors during the early period of the Society's history, the Academy is greatly indebted for its present existence and prosperous condition. In the year 1841, the Society published an interesting Memoir of Mr. Maclure, written by our late President, the lamented Samuel George Morton, to which the reader is respectfully referred, for a full account of this remarkable man.

Mr. Maclure was succeeded in the presidency of the Academy (December, 1840,) by William Hembel, Esq., who became a member of the Society in the year 1825.

Mr. Hembel was born in Philadelphia, on the 24th of September, 1764, and was educated in this city. At the age of sixteen years, an attack of scarlet fever left him with impaired hearing; and, in the hope that he might discover a remedy for his infirmity, he commenced the study of medicine about the year 1781. But, believing that his defective hearing would in a great measure disqualify him for the practice of the profession, he abandoned the idea of graduating, though often urged to receive a degree from the University of Pennsylvania by his friends, several of whom were professors in that institution. He was ardently attached to the study of medicine, and, to gratify his taste, he served with a portion of the army of the Revolution in Virginia, as a volunteer assistant in the medical department. Though he had not graduated, he practised medicine gratuitously for many years in this city; and not only gave advice and attention to the poor, but furnished them medicines at his own expense. I am assured, by one who knew him well, that Mr. Hembel spent \$500 in a year for remedies prescribed by himself for the indigent sick who applied to him for aid. When advanced in age, especially, a very considerable number of female patients resorted to him for advice, confident that his age, and experience, and learning, enabled him to afford them relief with more certainty than a younger practitioner. With his patients, he bore the title of

doctor ; but his integrity placed him above assuming to himself anything to which he was not justly entitled.

When epidemics prevailed, the poor and suffering always found in him a friend, ever ready to attend to them and relieve their sufferings.

Up to a late period of life, he purchased almost every newly published volume on medical science, to the study of which he was much attached ; and at his death he left one of the most extensive private medical libraries in this city. But he delighted most in the study and cultivation of chemical science.

Advanced age and infirmity induced him to decline re-election to the office of President of the Academy, in December, 1849, an office he occupied during nine years. He died on the 12th of June, 1851, in the 87th year of his age.

Mr. Hembel was a philanthropist, eminently benevolent, very sensitive, and of a modest, retiring disposition, which his infirmity of hearing led him to indulge. His literary and scientific acquirements were of a high order, and secured for him the respect of learned men. In him this Society lost a liberal patron, the community an excellent citizen, and the poor a devoted friend.

When his decease was announced at a meeting of the Society (June 17th, 1851), the following preamble and resolutions, submitted by Mr. Ord, were unanimously adopted :—

“The Academy, deeply sensible of the death of their venerable member, are impelled by a sense of duty, to give formal expression of their sorrow at the loss of one who, during the period of twenty-six years, was zealously active in his exertions, to advance those branches of knowledge for the cultivation of which this Institution was created : It is, therefore,

“*Resolved*, That the Academy, in mourning the departure of a friend whose long life was signalized by his devotion to scientific pursuits, derive consolation from the reflection that their steadfast benefactor was as conspicuous for his efficient benevolence, as for his integrity and social virtues.

“*Resolved*, That a copy of the foregoing be transmitted to the family of the deceased.”\*

Dr. Samuel George Morton was our fourth President.

Dr. Morton was born in Philadelphia on the 26th of January,

\* Proceedings of the Academy of Natural Sciences. Vol. 5, p. 213.

1799. He became a member of the Academy in April, 1820, and very soon after went to Europe. He returned in 1826, and from that time, until within a few days of his death, he labored industriously and continuously in the halls of the Academy, to acquire facts and to publish them to the world. In December, 1849, he was unanimously elected President of the Institution; but in the very height of his usefulness and fame, death suddenly removed him from among us, on the 15th of May, 1851, in the 52d year of his age.

The eloquent eulogy pronounced upon him by a fellow-member, Dr. Meigs, is fresh in the memories of all;\* it renders this brief allusion to the most distinguished of our deceased Presidents sufficient to complete the notice of all who have served the Academy up to this time, in the highest office within its gift.

The second period of the history of the Academy now claims attention.

Soon after the Museum was arranged in the new hall in Williams Court, Arch Street, Mr. John Shinn delivered a course of popular lectures on chemistry, under the auspices of the Society; Dr. Waterhouse lectured on ichthyology, and Dr. Troost on mineralogy, before the Academy. During the year 1816, a constitution was adopted, and in December Messrs. Mathias Morris, Zaccheus Collins, and Dr. R. M. Patterson were appointed a committee to apply to the Legislature of Pennsylvania for an act to incorporate the Society, which was obtained, and is dated March 24, 1817. This committee received considerable aid from Benjamin R. Morgan, Esq., John Reed, Esq., and John M. Scott, Esq., in procuring the act of incorporation; and the Society acknowledged their services in a series of resolutions adopted on the 15th of July.

At the instance of Mr. Maclure, a committee was appointed on the 4th February, 1817, to inquire into the expediency of publishing a periodical journal of the transactions of the Society. This committee consisted of Mr. Maclure (chairman) and Messrs. Z. Collins, T. Say, R. Haines, and S. Hazard; they reported in favor of publication, on the 4th of March, but the report was not adopted until the 11th. It was feared that a periodical

\* A Memoir of Samuel George Morton, M. D., Late President of the Academy of Natural Sciences of Philadelphia. By Charles D. Meigs, M. D. Read November 6, 1851, and published by direction of the Academy. Philadelphia: T. K. & P. G. Collins, Printers, 1851, pp. 48.

devoted exclusively to science would find too few patrons to defray the expense of printing, and for this reason it was anticipated by some that the entire cost of publication would fall upon the treasury of the Academy, which had been empty for a considerable time. But Mr. Maclure zealously urged the advantages which would inure to the Institution from a publication designed to make known to the world the labors and discoveries in natural science by members of the Academy. He himself was so confident of the success of the measure, that he inspired hope in those who regarded the undertaking despondingly or in coldness. The first number of a journal was laid before a meeting of the Society on the 20th of May, 1817. It contains a description of six new species of *Firola* (with a plate), by C. A. Lesueur; an account of the Rocky Mountain sheep (*Ovis montana*)\* by George Ord; and a "Description of seven species of American Fresh Water and Land Shells, not noticed in the systems. By Thomas Say."

The first committee of publication consisted of Messrs. Maclure, T. Say, G. Ord, R. Haines, T. Nuttall, J. Dulles, Dr. Cooper, and Dr. R. M. Patterson.

The "Introduction" presented with this first number of the Journal, exhibits the spirit which laid the foundation of the Institution, a spirit which has predominated in all its efforts from the beginning, and it will continue to prevail, if past conduct be regarded as a guarantee in any degree of future action. I invite attention to this Introduction, because it applies at the present time, although nearly thirty-five years have elapsed since it was printed.

"The members of the Academy of Natural Sciences, of Philadelphia, desirous of acquiring knowledge themselves, and extending it among their fellow-citizens, have for some years been accustomed to meet at leisure hours, for the purpose of communicating to each other such facts and observations as are calculated to promote the views of the Society. By degrees, a collection of subjects in natural history was made, and has increased,

\* Richardson, in his "*Fauna-Borialis Americana*" (London, 1829), described the same animal under the name of *Capra Americana*. A fine male specimen of the rare quadruped, the Bighorn of Lewis and Clarke, *Ovis montana*, Desmarest, has been recently presented to the Academy by the Smithsonian Institute, through Professor Baird.

until a Museum has been formed, which is already very valuable, and which is daily increasing.

"In further pursuance of the objects of their Institution, the Society have now determined to communicate to the public such facts and observations as, having appeared interesting to them, are likely to be interesting to other friends of natural science. They do not profess to make any periodical communication; but well knowing how desirable it is that persons engaged in similar pursuits should be made acquainted, as early as possible, with what has been done by their fellow-laborers in the fields of science elsewhere, they mean to publish a few pages whenever it appears to them that materials worthy of publication have been put into their possession. In so doing, they propose to exclude entirely all papers of mere theory—to confine their communications, as much as possible, to facts—and, by abridging papers too long for publication in their original state, to present the facts thus published, clothed in as few words as are consistent with perspicuous description.

"Well aware that much leisure and superfluous wealth are not always found in company with an ardent love of science, they mean their proposed publication to be as cheap, and as unostentatious, as the nature of the subjects will admit; so that it need not encroach unnecessarily on the funds of the Society, or of those who may wish to purchase it. In short, they are desirous of contributing their share to the mass of knowledge, as early, in all cases, and with as little show, and as small expense as possible. The present publication will be a specimen of what they propose in future.

"They invite the lovers of science generally, and particularly all those who are anxious for its encouragement in the United States, to aid in promoting the objects of this Institution, and to encourage the present publication, so long as the contents of it shall prove deserving of public approbation."

The first half of the first volume was "printed for the Society by D. Heartt;" and the numbers appeared monthly, or nearly so; but before the close of the year it was found that the demand for this publication was not adequate to pay the expenses of printing. To meet the difficulty in a degree, Mr. Maclure supplied types and a much worn printing press, and afforded facilities at his own house to continue the work. A compositor and a pressman, both young, were employed, and several members of the



publishing committee aided them in the work, as well as they knew how, and it is traditionary that Mr. Say attempted on several occasions to set types, but with very moderate success. Mr. Ord, anxious to forward the publication, translated or rather prepared the papers of M. Lesueur from materials furnished by him, as that gentleman, who immigrated from France in 1816, possessed very little knowledge of the English language. By such irregular means nearly all of the second half of the first volume was produced. In spite of such zeal and unusual labor, the Journal paused for want of money, before the close of 1818; and it was not again resumed until 1821, when Dr. Isaac Hays undertook its management, and through his efforts the publication continued till the close of 1825, without incurring any new debt. The printing was done in the office of Mr. Jesper Harding.

The establishment of this journal, and its maintenance, are due chiefly to the efforts of the Publication Committees, some members of which, as already stated, assisted at the press; but to Dr. Isaac Hays especially, we owe acknowledgments for his industry, zealous perseverance, and success, in reviving and sustaining the journal through many trials and pecuniary difficulties.\*

The Journal of the Academy of Natural Sciences, thus began, continued to be published at irregular intervals, a number being issued whenever sufficient material was furnished to make it up, until 1842, a period of twenty-five years.

\* The Publication Committees, after the first, above named, were as follows:—

1818. George Ord; Thomas Say.

(In the year 1819 the publication was suspended for want of money.)

1821. T. Say, T. Nuttall, Jos. Dulles, Dr. Isaac Hays, Isaac Lea.

1822. T. Say, T. Nuttall, Dr. Isaac Hays, Isaac Lea, Dr. R. E. Griffith.

1823. T. Say, Dr. Hays, Isaac Lea, Dr. R. E. Griffith, W. H. Keating.

This committee continued without change till

1826. Dr. S. G. Morton, J. P. Wetherill, Dr. W. Wetherill, J. P. Smith, Dr. R. Harlan.

1830. Dr. S. G. Morton, Dr. T. M'Euen, S. W. Conrad, Dr. C. Pickering, I. Lukens.

1834. Dr. Thos. M'Euen, C. A. Poulson, Dr. A. L. Elwyn, Dr. T. F. Betton, W. P. Gibbons.

1837. Dr. Thos. M'Euen, Dr. A. L. Elwyn, W. R. Johnson, Dr. J. Carson, Dr. Ed. Hallowell.

1839. Dr. Elwyn, Dr. Carson, Dr. R. Bridges, Dr. Ed. Hallowell, T. A. Conrad.

1841. Dr. Elwyn, Dr. Hallowell, W. S. Vaux, J. S. Phillips, Dr. W. S. Zantzinger.

The first series of the Journal consists of eight octavo volumes, each divided into two parts, forming an aggregate of 2,912 pages, illustrated by 161 plates. This series contains 237 papers or articles, describing objects new to naturalists at the time of publication, which are written in a brief and technical manner, because they were designed to inform the scientific. The whole of these papers were contributed by fifty-six authors, a list of whom is appended, as follows :—

Name of Author.	No. of articles furnished.	Name of Author.	No. of articles furnished.
1. <i>Audubon, J. J.</i>	$\frac{1}{2}$	29. <i>Lesueur, C. A.</i>	31
2. Bache, A. D.	$1\frac{1}{2}$	30. M'Euen, Thos.	$\frac{1}{2}$
3. Bachman, Rev. John	$5\frac{1}{2}$	31. <i>Macclure, Wm.</i>	2
4. Bigsby, J. J.	1	32. Michener, Ezra	1
5. Bonaparte, Chas.	9	33. <i>Mitchell, Saml. L.</i>	1
6. Bowen, George T.	2	34. <i>Morton, Saml. Geo.</i>	10
7. Coates, B. H.	1	35. Nuttall, Thos.	12
8. Coates, Reynell	3	36. Ord, George	$5\frac{1}{2}\frac{1}{2}$
9. <i>Conrad, S. W.</i>	4	37. Peale, T. R.	$\frac{1}{2}$
10. Conrad, T. A.	11	38. Phillips, John S.	1
11. <i>Dietz, R.</i>	1	39. Poeppig, Edwardo	1
12. <i>Elliot, Stephen</i>	1	40. <i>Rafinesque, C. S.</i>	1
13. <i>Green, Jacob</i>	$4\frac{1}{2}$	41. Randall, J. W.	1
14. Gilliams, Jacob	2	42. Ravenel, Edmund	1
15. <i>Godman, John D.</i>	2	43. Rhea, M.	1
16. Horner, W. E.	1	44. Rogers, H. D.	$\frac{1}{2}$
17. Haldeman, S. S.	4	45. <i>Say, Thos.</i>	$32\frac{1}{2}\frac{1}{2}$
18. Hallowell, Edward	3	46. <i>Schweinitz, Rev. L. D.</i>	2
19. Hare, Robt.	1	47. Seybert, H.	1
20. <i>Harlan, R.</i>	22	48. <i>Townsend, J. K.</i>	5
21. Harris, T. W.	1	49. <i>Troost, Gerard</i>	10
22. Hentz, N. M.	2	50. Trudeau, Jas.	2
23. James, Edwin	2	51. <i>Vanuxem, Lardner</i>	$10\frac{1}{2}\frac{1}{2}$
24. Jessup, Augustus E.	1	52. <i>Vaux, Roberts</i>	$\frac{1}{2}$
25. Johnson, W. R.	6	53. Wagner, Wm.	1
26. <i>Keating, W. H.</i>	$2\frac{1}{2}\frac{1}{2}$	54. Wood, Wm. W.	2
27. Lea, Isaac	1	55. Worth, James	1
28. Leib, Geo. C.	1	56. Zantzing, Wm. S.	1

The fraction indicates joint authorship in an article. The names printed in italics are of those known to be deceased.

The year 1817 was eventful in the history of the Academy. A charter was obtained, which gave the Institution a legal existence; and the publication of the Journal was commenced, which was the means of opening intercourse with learned societies at home and abroad, and making known our own existence. An exchange of Journals, first with the American Philosophical Society, and subsequently with other learned societies, was begun and has been continued to the present time, when the publications of the Academy are exchanged with twelve societies within the Union, and thirty-four beyond its limits, in America, Europe, Asia, and Africa. No one act of the Academy has contributed so much to its prosperity as the publication of this Journal.

In November of this year, the Academy appointed for the first time, Standing Committees on Zoology, Botany, Mineralogy, and Geology.

The progress of the Academy was not very rapid; yet, at the close of 1820, the question of enlarged accommodation once more presented itself for consideration. The Institution had sprung from inconsiderable beginnings, and pursued its objects in a retired and unpretending manner, and now in the eighth year of its existence, was favorably recognized by the friends of natural science, both at home and abroad. At that time it numbered about 100 members and 190 correspondents.

In the year 1823, a committee was appointed to consider the best means of obtaining better accommodations. On the 25th of January, 1825, that committee was discharged and another appointed, consisting of Isaac Hays, M. D., Wm. Mason Walmsley, William Strickland, *William S. Warder*, *Samuel Geo. Morton*, M. D., and *Roberts Vaux*. This committee was continued, and finally succeeded in establishing the Society in new quarters.

On the 3d of January, 1826, the Society purchased a lot of ground and building at the south-east corner of Twelfth and George Streets, for the sum of \$4,300. It had been originally designed, and was used as a place of religious worship for several years by a society of Swedenborgians; and, to fit it for the purposes of the Academy, an expenditure of \$1,700 was required, making the aggregate cost about \$6,000. This sum was made up of donations from members, to the amount of more than \$2,000, the balance being loaned by a few members and others. A debt of \$3,000 was thus created, and up to August 1837, only \$300 of

the amount had been paid off. At that time, Mr. Maclure with his characteristic liberality, presented the Institution with five thousand dollars. The debt was forthwith liquidated, and \$2,300 placed at interest for the use of the Society.

The purchase of this property was opposed by some few of the members, who urged that its situation was too remote, and that in winter it would be scarcely accessible to a majority. And Mr. Maclure, when first called upon to contribute towards the purchase, declined on the ground that, though the property was at a moderate price, it would never increase in value. He urged that "the community system" must prevail in the course of a few years, and then Philadelphia would be deserted, and those who might live long enough would "see the foxes looking out at the windows." But, finding his arguments did not prevail, he subscribed several hundred dollars.

The Academy met in that hall for the first time on the 9th of May, 1826. The edifice commonly called the "New Jerusalem Church," was forty-four by fifty feet, and surmounted by a dome; the lot of ground on which it stood was ninety-nine by forty-five feet. There is a representation of the old hall on the title page of the sixth volume of the Journal.

To render the Museum extensively useful, and to diffuse a love of science, the Academy opened it to the public gratuitously in 1828; and, from that time, it has been visited by citizens and strangers on Tuesday and Friday afternoons throughout the year, tickets of admission being presented by the members to any who may apply for them.\* The Legislature of the State, appreciating the liberality and usefulness of the Academy, exempted the Institution from taxation for a period of twenty years from the year 1831.

Here the collections of the Academy continued to increase; the zeal of the members was unabated. In the year 1837, there was again a demand for increased accommodation, which must be regarded as positive evidence of prosperity.

On the 22d of April, 1839, the Society purchased the lot at

\* During a considerable period, admission to the Museum was without any restriction whatever on the public days; but finding that it became a resort for young children, who frequently damaged the cases and collections, it was determined to exclude all who were not provided with tickets, which could always be procured on application to members.

the north-west corner of Broad and George Street, for the sum of \$13,338, and on the 25th of May, the corner stone of the present edifice was laid with the usual ceremonies. On the occasion, Professor Walter R. Johnson delivered an eloquent and appropriate address, which was published by order of the Society.

The value of the premises at the corner of Twelfth and George Streets had appreciated very much, but the means of erecting this hall were chiefly derived from William Maclure, who subscribed towards this desirable object twenty thousand dollars. Seventeen thousand dollars were reserved as a building fund, which was largely augmented by liberal donations from members and others interested in the cause of science.

The Society held its first meeting in this hall, on the 7th of February, 1840, and from that date to the present the prosperity of the Academy has continued. At no period of its history has its progress been more rapid than during the past ten years; but still the work is incomplete, and demands now greater exertions and more encouragement from the friends of natural science to extend its usefulness. Although the building was enlarged in 1847, as already stated, at the expense of Dr. T. B. Wilson, there is not now sufficient space in it for the proper exhibition of the Museum and Library, in both of which there are numerous deficiencies. At this time, there is a proposition under consideration to raise the building fifteen feet higher; and thus obtain a room one hundred and ten by forty-two feet, for the display of Wilson's unrivalled collection of birds, which is now too much crowded for convenient study and reference. Should the liberality of our fellow-citizens and members enable us to make this addition, we shall be, for a short time at least, better accommodated.

In March, 1841, the Society commenced the publication of the "Proceedings of the Academy of Natural Sciences of Philadelphia," a number being issued every two months, and furnished to subscribers at one dollar a year. This periodical contains a record of the meetings of the Academy, which are held every Tuesday evening. Strangers may be present, except at the last meeting in each month, which is reserved for the private business of the Institution. The other or ordinary meetings are devoted to the reading of scientific papers, verbal communications, the reception of donations, &c. &c., all of which are appropriately stated in the "Proceedings."

A second series of the Journal of the Academy was commenced in December, 1847. It is in quarto form, and is furnished to subscribers at one dollar and a half the number. Six numbers have been published; four of which constitute a volume. This new series embraces at this time forty-five articles by twenty authors, with fifty-nine handsome plates or illustrations; the aggregate consists of five hundred and forty quarto pages:—

Authors.	No. of articles.	Authors.	No. of articles.
S. F. Baird,	1	Charles D. Meigs,	1
John Cassin,	9	Samuel Geo. Morton,	1
J. L. Le Conte,	5	Thomas Nuttall,	1
T. A. Conrad,	5	D. D. Owen,	1 $\frac{1}{2}$ $\frac{1}{2}$
James Deane,	1	Richard Owen,	1
William Gambel,	3	B. F. Shumard,	$\frac{1}{2}$ $\frac{1}{2}$
Robert W. Gibbes,	4	Richard C. Taylor,	1
S. S. Haldeman,	2	M. Tuomey,	1
Isaac Lea,	1	J. K. Townsend,	1
Joseph Leidy,	4	S. W. Woodhouse,	1

The fractions indicate joint authorship of an article.

The authors of contributions receive no remuneration for their labors. These periodicals are sustained by subscription, assisted by a legacy from the late Mrs. Elizabeth Stott. She bequeathed two thousand dollars, to be securely invested, and the interest to be expended in "printing and publishing such papers communicated to the Academy, as it may direct," to be published. It is expended exclusively on the Journal.

As already stated, the founders of the Institution were seven in number. Since the 16th of April, 1812, when the first election took place, up to the 31st of December, 1851, 420 gentlemen and 1 lady have been elected members, making an aggregate of 428. Of this number 112 became "life members," 38 of whom are known to be deceased; so that there are 74 members at this time exempt from the payment of annual contributions. Of the 317 ordinary members, 46 are known to have deceased; many have removed from the city, some have resigned, and a few have been erased from the list of members. The books of the treasurer show that, in the year 1851, there were only 69 annual subscribers; so that at this time, the number of members does not probably exceed 200.

From the formation of the Society up to December 31, 1851,

306 persons, resident within the United States, but not of this city, and 277 persons resident in foreign countries, or an aggregate of 583, have been elected correspondents. Of this number, 93 are known to be deceased. The number of correspondents at this time does not probably exceed 450.

Supposing that every member and every correspondent elected has done something to advance the Institution, its present condition is due, on the most liberal estimate, to the joint liberality and labors of not more than one thousand individuals, in all parts of the world, in the course of forty years. In that period, the population of Philadelphia has increased from less than one hundred, to more than four hundred thousand; yet from this great number of people, in all that time, only four hundred and twenty-eight citizens of Philadelphia have become members, and contributed to the advancement of the Academy of Natural Sciences, an institution for the acquisition and diffusion of knowledge, second to none in this city or State.

The Institution is supported exclusively by donations, and the annual contributions of its members, of whom very few possess superfluous means. It owns no domain yielding revenue; yet, in spite of a mortgage debt on the building of eleven thousand dollars, it has thus far lived, and almost flourished, on means afforded by the generous who are lovers of science. Debt is no less baneful to the prosperity of institutions than of individuals; until this mortgage be considerably reduced, or entirely paid off, the legitimate income of the Society exclusively, is not more than sufficient to defray the cost of warming and lighting the building, and of preserving the library and collections from injury and loss. The most careful management of its fiscal affairs now, is essential to the continuous success of the Academy; but it cannot be denied that there is at this moment a pressing demand for increased accommodation, to advantageously arrange and display the collections, several of which are not accessible to the public, or even readily to members, for want of space to exhibit them: besides, the preservation of zoological specimens is rendered difficult by crowding them together.

What length of time must elapse before this serious obstacle to the advancement of the Society will be removed, it is not easy to conjecture. But it is hoped that in this great and wealthy population, there will be found a sufficient number of liberal, public-spirited citizens, who will not permit the Academy of Natural

Sciences of Philadelphia to languish for the want of a sum of money, less than is sometimes expended in preparing an ephemeral pageant of welcome to a stranger, or to secure the election of a political aspirant to some office of two or three years' tenure.

There is enough in the past history of the Academy and in its present condition, imperfect as it is, to encourage all to labor industriously in the cause of science. Even in its earlier years, it had won the respect of the government of the United States. Its archives show that members of the Cabinet at Washington officially invited and accepted suggestions from the Academy, in planning Major Long's expedition to the Rocky Mountains, and the South Sea Exploring Expedition, under the direction of Commander Wilkes of the Navy. Members of the Institution accompanied both expeditions; and by their labors rendered the result more valuable and useful to the country than they could have been without the assistance of naturalists.

Our efforts in behalf of the Academy are contributions to the cause of American science, the advance of which must benefit our city, our State, and the whole Union. An example of industry now may stimulate those who succeed us here, to perform what will reflect back credit upon us, though we gain none for ourselves. Let us continue what has been so well begun, and endeavor, each and all of us, to contribute something towards the increase and diffusion of knowledge. Our fellow citizens, seeing us in earnest at our work, will not fail to foster and encourage labors which have for their object the common interests of the people. They may be assured that our Institution, humble as it is, has contributed towards our national respectability abroad; if they should doubt it, show them how our museum and library assisted our fellow-members, Say, Godman, Harlan, Morton, and others, in acquiring such an eminent degree of learning as has made their names, and consequently that of their country, familiar wherever knowledge is respected.

Our Institution constitutes a record of the munificence, and liberality, and industry, of individuals, who desire to see the laws of nature ascertained and made manifest to all; a record upon which every citizen may inscribe his name by contributing to the advancement of human knowledge in any, or in all the branches of natural science. The museum, the library, the treasury, are all open to acts of liberality. The scope of the Institution embraces the establishment of free lectures, whenever



the spirit of generosity may endow the Academy with means for the purpose. Some of the founders hoped the time would come when a botanical garden, as well as a zoological garden, would constitute parts of the Institution. Their hopes may yet be realized; and the Academy of Natural Sciences of Philadelphia may one day compare with the British Museum, or the celebrated museum of the Jardin des Plantes, of Paris, which owe so much to the patronage of royal governments.

This Institution has no acknowledgments to make for patronage received from the political government. Except only the Act of the Legislature of the Commonwealth of Pennsylvania to exempt the property occupied by the Academy from taxation, the Government of the State has not done anything to encourage the diffusion of knowledge by the labors of this Society.\* This circumstance may, in the opinion of some persons, add to the honor of the Academy; while others may fancy the Legislature would pursue a wise policy to assist an Institution, whose labors are manifestly directed towards the diffusion of knowledge, because it is, in fact, one of the public schools, through the instrumentality of which every citizen may acquire useful information.

\* Extract of "An Act, relative to certain taxes in the counties of Centre, Lycoming, and Clinton, and for other purposes."

SECT. 2. Whereas by an act of the General Assembly of Pennsylvania, passed the 7th day of February, A. D. eighteen hundred and thirty-one, the hall and lot of ground belonging to the Academy of Natural Sciences of Philadelphia, were exempted from taxation; and *whereas*, in order to afford more extensive accommodations for their library, museum, and collections of natural history, and to increase the usefulness of the said Academy of Natural Sciences, they have sold their former property, and applied the proceeds thereof towards the purchase of another lot of ground, and the erection thereon of a more commodious and larger hall: Therefore,

*"Be it enacted by the authority of the same,* That the hall and lot of ground belonging to the Academy of Natural Sciences of Philadelphia, situated in Broad Street, in the city of Philadelphia, be, and is hereby exempted from all state, county, corporation, and school taxes, so long as the said hall and lot of ground shall belong to, and be used for the purposes of the said Academy of Natural Sciences of Philadelphia.

WM. HOPKINS,

*Speaker of the House of Representatives.*

ED. KINSBURY,

*Speaker of the Senate.*

*Approved* the eleventh day of June, one thousand eight hundred and forty.

DAVID B. PORTER,

**OFFICERS**  
**OF THE**  
**ACADEMY OF NATURAL SCIENCES**  
**OF PHILADELPHIA,**  
**FOR 1852.**

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**PRESIDENT.**

GEORGE ORD.

**VICE-PRESIDENTS.**

JOHN PRICE WETHERILL,  
ROBERT BRIDGES, M. D.

**CORRESPONDING SECRETARY.**

JOHN CASSIN.

**RECORDING SECRETARY.**

B. HOWARD RAND, M. D.

**LIBRARIAN.**

WM. S. ZANTZINGER, M. D.

**TREASURER.**

GEORGE W. CARPENTER.

**CURATORS.**

JOSEPH LEIDY, M. D.  
WILLIAM S. VAUX,  
SAMUEL ASHMEAD,  
JOHN CASSIN.

**AUDITORS.**

WILLIAM S. VAUX,  
SAMUEL ASHMEAD,  
ROBERT PEARSALL.

**COMMITTEE OF PUBLICATION.**

WILLIAM S. VAUX,  
ROBERT BRIDGES, M. D.  
THOMAS B. WILSON, M. D.  
ISAAC LEA,  
W. S. W. RUSCHENBERGER, M. D.

## STANDING COMMITTEES FOR 1852.

1. *Ethnology.*  
John S. Phillips,  
James C. Fisher,  
Robert Pearsall.
2. *Comparative Anatomy and General Zoology.*  
Joseph Leidy,  
Edward Hallowell,  
John Neill.
3. *Mammalogy.*  
James C. Fisher,  
Elisha J. Lewis,  
S. W. Woodhouse.
4. *Ornithology.*  
John Cassin,  
Edward Harris,  
Thomas B. Wilson.
5. *Herpetology and Ichthyology.*  
Edward Hallowell,  
John Cassin,  
William Keller.
6. *Conchology.*  
Isaac Lea,  
Thomas B. Wilson,  
W. S. W. Ruschenberger.
7. *Entomology and Crustacea.*  
S. S. Haldeman,  
Robert Bridges,  
W. S. Zantzinger.
8. *Botany.*  
R. Bridges,  
W. S. Zantzinger,  
Gavin Watson.
9. *Paleontology.*  
T. A. Conrad,  
Joseph Leidy,  
B. Howard Rand.
10. *Geology.*  
J. Price Wetherill,  
Theodore F. Moss,  
Aubrey H. Smith.
11. *Mineralogy.*  
Wm. S. Vaux,  
Samuel Ashmead,  
Charles M. Wetherill,
12. *Physics.*  
Benjamin H. Coates,  
James C. Fisher,  
William Parker Foulke.
13. *Library.*  
Thomas B. Wilson,  
Robert Bridges,  
Robert E. Peterson.
14. *Proceedings.*  
William S. Zantzinger,  
Joseph Leidy,  
W. S. W. Ruschenberger.

# MEMBERS

OF THE

## ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA.

[DECEMBER 31, 1851.]

 Names of members known to be deceased are in *italics*.

Names of life members are preceded by an asterisk (\*).

Names of members who are not residents of the city, are followed by the letters (N. R.)

Names of those who were originally elected correspondents, and became members by removal to the city, are followed by (Corres.)

The names of those who have resigned, or who have forfeited their membership, are not included in this list.

Correspondents are regarded as members when they reside permanently in the city.

<i>Allinson, N. S., M. D.</i>	Dec. 11, 1812.	Bond, Henry, M. D.	Jan. 1830.
<i>Anthony, Thomas</i>	Jan. 5, 1818.	* <i>Burrough, Marmaduke, M. D.</i>	Nov. 1830.
Abert, J. J., Col. (N. R.)	Oct. 1828.	*Bridges, Robert, M. D.	Jan. 1835.
<i>Alden, Charles H.</i>	June, 1837.	<i>Bowie, Thos. L.</i>	Nov. 1835.
*Ashmead, Samuel	Sept. 1839.	Browne, Peter A.	Aug. 1841.
Ashmead, Samuel B.	Jan. 1843.	*Biddle, Alexander	Aug. 1848.
Allen, Nathan, M. D.	Aug. 1841.	Barton, Thomas Pennant	April, 1849.
Allen, W. H.	Aug. 1851.	Belknap, Henry (N. R.)	May, 1849.
Allinson, George B.	April, 1847.	Buck, Francis N.	Jan. 1850.
		*Biddle, Clement, Jr.	May, 1850.
*Barnes, John, M. D. (N. R.)	April, 1812.	Brinton, John H.	June, 1851.
* <i>Barton, Edward, M. D.</i>	Aug. 1815.	Burt, J. L., M. D. (N. R.)	Oct. 1851.
*Brown, Moses	Feb. 1817.	*Baird, S. F. (N. R.) (Corres.)	Aug. 1842.
* <i>Biddle, Nicholas</i>	Jan. 1818.		
<i>Bowen George T.</i>	Nov. 1822.	* <i>Correa, de Serra, Joseph,</i>	Feb. 8, 1814
<i>Birch, William Y.</i>	Dec. 1823.	<i>Coze, Alexander S.</i>	Feb. 21, 1815.
Bonaparte, Charles L. (N. R.)	Feb. 1824.	* <i>Collins, Zaccheus</i>	March 7, 1815.
*Bancker, Charles N.	April, 1824.	<i>Cleaver, Isaac, M. D.</i>	Jan. 1817.
*Brewer, John M. (Corres.)	Oct. 1820.	*Clark, Edward (N. R.)	Jan. 1817.
*Beck, Charles F., M. D.	June, 1827.	*Carmalt, Caleb (N. R.)	Aug. 1817.
Betton, Thos. F., M. D. (N. R.)	Dec. 1828.	*Coates, Benjamin H., M. D.	April, 1818.
Bache, Alex. Dallas (N. R.)	Jan. 1829.	*Carpenter, George W.	July, 1825.

*Clark, John Y., M.D. (N.R.)	Feb. 1826.	*Gerhard, Wm. W., M. D.	Nov. 1835.
*Conrad, Solomon W.	March, 1826.	Gambel, Wm., M. D.	Aug. 1843.
Conrad, Timothy A.	Jan. 1831.	Germain, Lewis J. (N. R.)	April, 1846.
Carson, Joseph, M. D.	Oct. 1833.	Goddard, Kingston, Rev.	Jan. 1848.
Chase, Heber, M. D.	Aug. 1836.	Grant, Wm. Robertson, M.D.	Dec. 1849.
*Clay, Joseph A.	Aug. 1837.		
Camac, William M.	March, 1839.	*Haines, Reuben	Nov. 1813.
*Cresson, Charles C.	Sept. 1840.	*Hare, Robert	Nov. 1813.
*Cassin, John	Sept. 1842.	Hazard, Samuel (Corres.)	Jan. 1814.
Curtis, Josiah (N. R.)	June, 1843.	*Harlan, Richard, M. D.	Oct. 1815.
Cuesta, Ferd. de la (N. R.)	Nov. 1844.	*Hays, Isaac, M. D.	July, 1818.
Cope, Caleb	Jan. 1848.	Hentz, N. M. (N. R.)	May, 1819.
*Cooke, John	Jan. 1848.	Hering, C. (Corres.)	Oct. 1826.
Caldcleugh, A. Robert	Nov. 1851.	*Hembel, Wm.	Sept. 1824.
		Horsfield, S. C. C. (N. R.)	Oct. 1830.
*Dobson, Judah	Nov. 1813.	Huffnagle, Ch., M.D. (N. R.)	Nov. 1830.
Davis, David Jones, M. D.	June, 1815.	Hallowell, Edward, M. D.	Feb. 1834.
*Dulles, Joseph H.	Feb. 1816.	*Harris, Edward (N. R.)	July, 1835.
*Dietz, Rudolph	Jan. 1821.	*Haldeman, Sam. S. (N. R.)	Jan. 1837.
Dunn, Nathan (Corres.)	June, 1828.	*Holmes, Charles	Feb. 1838.
Davis, Chas., M.D. (N. R.)	March, 1842.	Hiester, John P., M.D. (N.R.)	Nov. 1843.
Darrach, William, M. D.	May, 1844.	*Haines, J. S. (N. R.)	March, 1841.
Dundas, James	Aug. 1844.	Heerman, Adolph L.	April, 1845.
Dickeson, M. W., M. D.	Oct. 1846.	Hartshorne, Edward, M. D.	May, 1847.
		*Haines, Robert B. (N. R.)	Jan. 1848.
Eberle, John, M. D.	April, 1819.	*Horner, W. E., M. D.	Feb. 1849.
*Ellmaker, Levi	April, 1829.	Henry, Bernard, M. D.	May, 1849.
Elwyn, Alf. Langdon, M. D.	Dec. 1831.		
Evans, Edm'd C., M.D. (N.R.)	Nov. 1838.	Jones, Thos. P., M. D.	Dec. 1812.
*Ellet, Charles, Jr.	April, 1842.	*James, Thomas C., M. D.	March, 1814.
Emery, Moses H.	Sept. 1847.	*Jessup, August E.	Nov. 1818.
		Johnson, Walter R. (N. R.)	Feb. 1827.
Frazier, Robert	April, 1814.	Jackson, Isaac R.	Aug. 1841.
*Fisher, Joseph	May, 1821.	*Jordan, John	Jan. 1851.
Fisher, Thomas	April, 1824.	*Jaudon, Samuel (N. R.)	Jan. 1836.
Foster, William A. (N. R.)	Nov. 1838.		
Foster, Hudson S.	Jan. 1834.	*Kneass, Wm.	May, 1814.
Frazer, John F.	Aug. 1835.	*Keating, Wm. H.	April, 1816.
*Frost, John	Sept. 1844.	Keagy, John M., M. D.	Jan. 1833.
French, Benj. F. (Correa.)	Jan. 1843.	Kane, Elisha K., M. D.	Dec. 1843.
Foulke, Wm. Parker	Nov. 1849.	*Kilvington, Robert	April, 1843.
Fisher, James C., M. D.	July, 1850.	King, Edward	March, 1843.
		*Kern, H. Richard	May, 1847.
*Gilliams, Jacob (Found.)	Jan. 25, 1812.	King, Charles R., M. D.	June, 1843.
Griffith, R. E., M. D.	May, 1815.	Kern, Benj. J., M. D.	Sept. 1847.
Godman, John D.	July, 1821.	Kern, Edward M.	Oct. 1847.
Goddard, Paul Beck, M. D.	Feb. 1829.	Klemm, Charles	Oct. 1847.
Griscom, Samuel S.	Nov. 1830.	Keller, Wilhelm, M. D.	Nov. 1847.
Gibbons, Wm. P. (N. R.)	Nov. 1833.		
Gumbes, Sam. Wetherill	April, 1834.	*Lukens, Isaiah	June, 1812.

Le Conte, John (Corres.)	Feb. 1815.	Pickering, Chas., M. D. (N. R.)	1827.
*Lea, Isaac	June, 1815.	<i>Penrose, Saml. S.</i>	Nov. 1830.
<i>Lea, John</i>	May, 1815.	*Peterson, Robt. E.	April, 1831.
Longstreth, Joshua	June, 1815.	Porter, R. R.	June, 1833.
* <i>Lesueur, C. A.</i>	Jan. 1818.	Pearsall, Robert	Dec. 1835.
*Leidy, Joseph, M. D.	July, 1845.	Phillips, John S.	July, 1836.
Le Conte, J. L., M. D. (Cor.)	Feb. 1845.	Pepper, Wm., M. D.	Feb. 1837.
Land, John (N. R.)	May 1836.	Poulson, Charles A., Jr.	Aug. 1841.
Lewis, Elisha J., M. D.	July, 1846.	Percival, Thomas C.	Jan. 1845.
*Lambert, John	Nov. 1846.	Powel, Samuel	July, 1847.
Lea, M. Carey	Sept. 1847.	Pancoast, Joseph, M. D.	Dec. 1847.
*Lennig, Charles	Oct. 1847.	Patton, Rev. John	Dec. 1851.
Ludlow, John L., M. D.	Nov. 1847.		
Lejée, Wm. R.	Feb. 1848.	* <i>Rotch, Joseph</i>	Feb. 1814.
Lea, H. C.	Feb. 1848.	*Randolph, Richard	May, 1814.
Lewis, Francis W., M. D.	Oct. 1849.	<i>Richardson, Caleb</i>	Dec. 1814.
*Lennig, Francis	July, 1851.	* <i>Rotch, Thomas</i>	Feb. 1816.
Langstroth, Rev. Lorenzo L.	Sept. 1851.	<i>Rafinesque, C. S.</i>	Feb. 1816.
		*Read, James	Dec. 1824.
*Mann, C. M. (Founder)	Jan. 1812.	<i>Reeve, Mark M., M. D.</i>	March, 1831.
*McEuen, Thos., M. D.	May, 1818.	Rogers, Henry D. (N. R.)	Nov. 1833.
*Morton, Sam. Geo., M. D.	April, 1820.	Rivinus, Ed. F., M. D. (N. R.)	Jan. 1834.
*Mitchell, John K., M. D.	July, 1822.	<i>Ryan, Thomas</i>	Jan. 1836.
*Maclure, Wm.	July, 1812.	Rogers, R. E., M. D. (N. R.)	Feb. 1837.
<i>Mickle, Andrew E., M. D.</i>	June, 1831.	Rogers, James B., M. D.	Oct. 1847.
Mütter, Thos. D., M. D.	July, 1833.	*Rosengarten, Samuel G.	May, 1850.
McEuen, Charles	Dec. 1834.	Remington, Richard P.	Nov. 1850.
<i>Miffin, George</i>	March, 1835.	Rice, W. M.	Dec. 1842.
<i>Miller, Clement S.</i>	Dec. 1836.	*Rand, B. Howard, M. D.	Jan. 1851.
*Markland, John H.	May, 1839.	Ruschenberger, W. S. W.,	
*Maclure, Alexander	Dec. 1840.	M. D. (Corres.)	May, 1832.
Moss, Theodore F.	June, 1845.		
McCall, G. A., Col. (Corres.)	June 1847.	* <i>Shinn, John, Jr. (Founder)</i>	Jan. 1812.
McClellan, John H. B., M. D.	Nov. 1847.	*Speakman, John (Founder)	Jan. 1812.
Meigs, Charles D., M. D.	April, 1848.	*Say, Thomas (Founder)	April, 1812.
McMichael, Wm. (N. R.)	June, 1850.	* <i>Stouse, Joseph, M. D.</i>	May, 1812.
		*Say, Benjamin	June, 1813.
*Norris, Wm. Jr.	Dec. 1830.	*Smith, Charles W.	Dec. 1815.
Neff, John, M. D.	May, 1847.	*Smith, Jacob R.	Dec. 1815.
*Norris, Octavus A.	Oct. 1849.	<i>Stockton, E. B.</i>	May, 1815.
		Stewart, William (N. R.)	June, 1823.
*Ord, George	Sept. 1815.	*Spackman, George, M. D.	July, 1825.
		*Smith, Jos. P.	Feb. 1825.
*Parmentier, N. S. (Found.)	Jan. 1812.	*Seybert, Henry	Dec. 1826.
*Peirce, Jacob	Dec. 1813.	Steinhaur, Daniel, Rev.	July, 1829.
*Patterson, Robt. M., M. D.	Jan. 1816.	<i>Smith, John B.</i>	April, 1834.
*Peale, Titian R. (N. R.)	Aug. 1817.	*Simmons, John	July, 1835.
*Poulson, Chas. A.	Sept. 1823.	Shoemaker, Benjamin	Sept. 1835.
*Pennock, C. W., M. D. (N. R.)	June, 1824.	<i>Snelling, Samuel</i>	Aug. 1836.
*Preston, Jonas, M. D.	Jan. 1825.	*Say, Mrs. Lucy W. (N. R.)	Oct. 1841.

Stephens, Horatio S. (N. R.)	May, 1848.	Woollens, Jos., M. D.	June, 1815.
Skerrett, David C., M. D.	April, 1847.	* Watson, Jos.	May, 1816.
* Sergeant, J. Dickinson	Oct. 1847.	* Wetherill, John Price	March, 1817.
Smith, John Jay (N. R.)	Feb. 1848.	* Wagner, Tobias	Oct. 1818.
Smith, Francis Gurney, M. D.	Feb. 1849.	* Williams, Henry J.	April, 1819.
Smith, Aubrey H.	Sept. 1850.	* Wetherill, William	Feb. 1824.
Smith, Charles E.	June, 1851.	Wood, Wm. W. (N. R.)	Jan. 1825.
Sherman, W. L., M. D.	Oct. 1851.	* Wood, George B., M. D.	Feb. 1825.
Sargent, F. W., M. D.	Sept. 1848.	Ware, Nathaniel A.	Oct. 1826.
		* Wetherill Charles	Nov. 1830.
Troost, Gerard, M. D. (Found.)	Jan. 1812.	* Wistar, Richard	Jan. 1831.
Thompson, John Edgar	Feb. 1831.	* Wilson Thomas B., M. D.	June, 1832.
* Taylor, R. C. (Corres.)	July, 1832.	Walker, A. M. (N. R.)	April, 1836.
* Townsend, John K., M. D.	Sept. 1833.	Whelpley, James D. (N. R.)	March, 1838.
Turnpenny, Frederick, M. D.	Nov. 1833.	Wistar, Mifflin, M. D.	June, 1839.
Trudeau, James, M. D. (N. R.)	Nov. 1835.	Watson, Gavin, M. D.	April, 1840.
Tuft, John B., M. D.	May, 1831.	Wetherill, Samuel (N. R.)	Nov. 1843.
		Woodhouse, Samuel W., M. D.	Nov. 1845.
Vanuxem, Lardner	June, 1815.	Wetherill, C. M., Jr., M. D.	Feb. 1846.
* Vaux, Roberts	March, 1818.	Whitman, William E.	Feb. 1848.
* Vaughan, John	March, 1822.	Wolgemuth, Francis F.	Feb. 1848.
* Vaux, William S.	March, 1834.	* Wilson, William S. (N. R.)	June, 1848.
		Wheatley, C. M. (N. R.)	March, 1850.
Wilson, Alexander	June, 1818.	Wister, Caspar, M. D.	June, 1851.
Warner, Benjamin	Feb. 1814.		
Waterhouse, John F., M. D.	March, 1814.	Zantzinger, George	Sept. 1835.
* Warder, William S.	Dec. 1814.	Zantzinger, William S., M. D.	Oct. 1840.
* Wagner, William	June, 1815.		

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Total number of members named	277
Total number of life-members	112
Total number non-resident	46
Total number who have died members	78
Total number resident in the city	153

Correspondents omitted.

